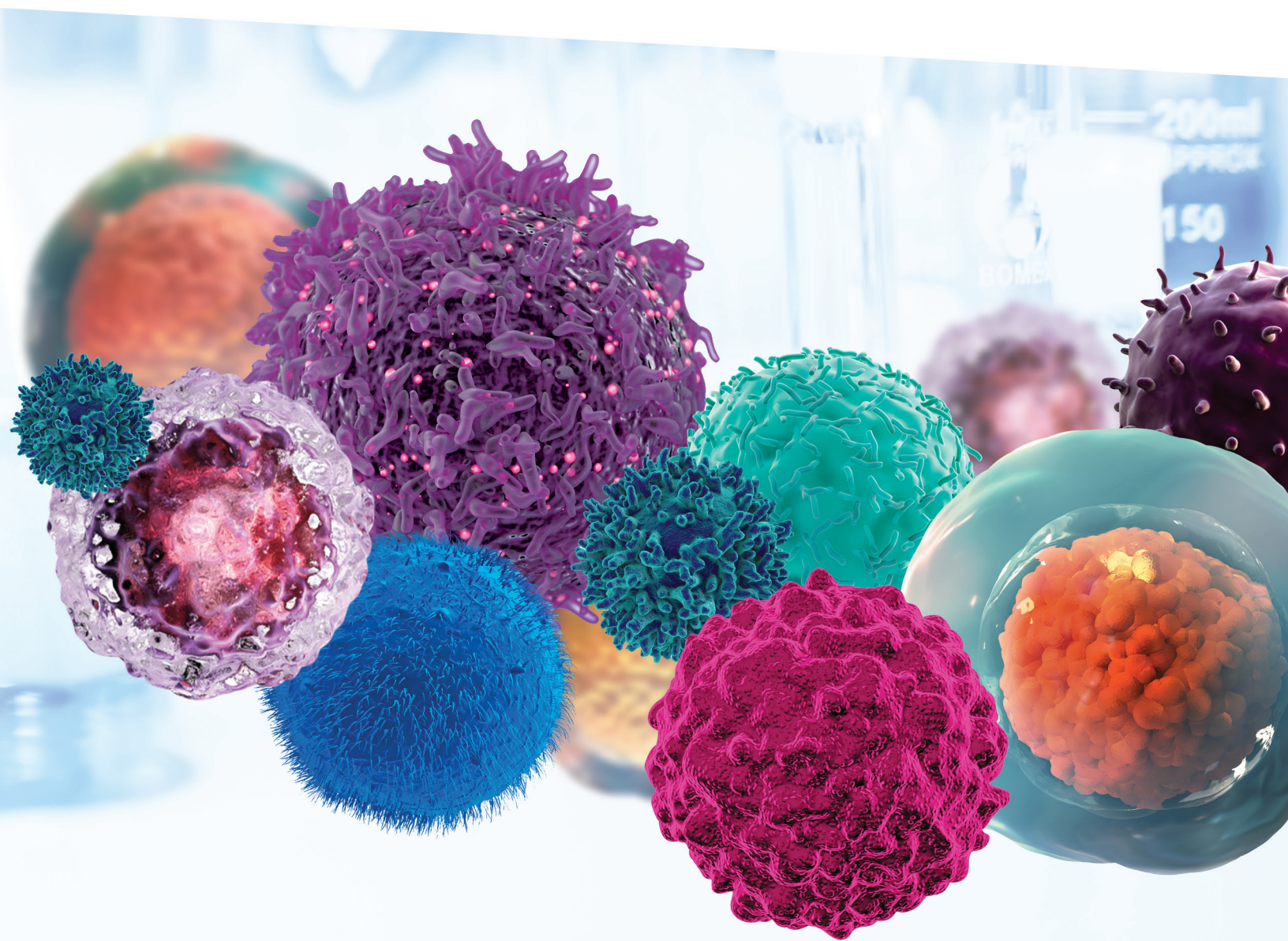


Cytokine Index

5th Edition





Cytokine Index

Fifth Edition

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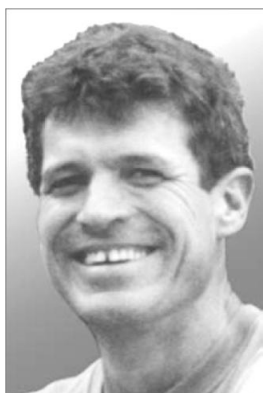
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This book is dedicated in the memory of Stephen M. Finley and Yitzhak Stabinsky Ph.D.
co-founders and Directors of PeproTech, Inc.



Stephen M. Finley
1954-2003



Yitzhak Stabinsky
1941-2014

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Table of Contents

PeproTech Worldwide Office..... 4

Cytokines 6

References..... 348

Technical Information:

Chemokine Nomenclature 359

FGF Superfamily 360

TGF-β Superfamily 361

Neurotrophin/Neuropoietic Cytokines 363

TNF Nomenclature 364

VEGF/PDGF Family 365

General Characteristics of Plasma Lipoproteins..... 366

Classification of Apoproteins 366

Antagonists of TGF-β Ligands 366

Index 367

Aeromonas Aminopeptidase

Synonyms:	None
Description:	Proteases (also called Proteolytic Enzymes, Peptidases, or Proteinases) are enzymes that hydrolyze the amide bonds within proteins or peptides. Most proteases act in a specific manner, hydrolyzing bonds at, or adjacent to specific residues, or a specific sequence of residues contained within the substrate protein or peptide. Proteases play an important role in most diseases and biological processes, including prenatal and postnatal development, reproduction, signal transduction, the immune response, various autoimmune and degenerative diseases, and cancer. They are also an important research tool, frequently used in the analysis and production of proteins.
Research Areas:	Apoptosis, Lipid Metabolism
AA Sequence:	MPPITQQATV TAWLPQVDAS QITGTISSLE SFTNRFYTTT SGAQASDWIA SEWQALSASL PNASVKQVSH SGYNQKSVVM TITGSEAPDE WIVIGGHLDS TIGSHTNEQS VAPGADDAS GIAAVTEVIR VLSENNFQPK RSIAFMAYAA EEVGLRGSQD LANQYKSEGK NVVSALQLDM TNYKGSAQDV VFITDYTDSN FTQYLTQLMD EYLPSTLYGF DTCGYACSDH ASWHNAGYPA AMPFESKFND YNPRIHTTQD TLANSDPTGS HAKKFTQLGL AYAIEMGSAT G
Estimated pI:	4.35
	Accession #: Q01693

Product Name	Catalog Number	MW	AA
Recombinant Aeromonas Aminopeptidase	100-10	31.4 kDa	291

Activin A

Synonyms:	Inhibin beta-1, FRP, FSH (Follicle-Stimulating Hormone)-releasing protein, Erythroid Differentiation Factor (EDF)		
Description:	Activin A is a TGF-β family member that exhibits a wide range of biological activities, including regulation of cellular proliferation and differentiation, and promotion of neuronal survival. Elevated levels of Activin A in human colorectal tumors and in postmenopausal women have been implicated in colorectal and breast cancers, respectively. The biological activities of Activin A can be neutralized by inhibins and by the diffusible TGF-β antagonist, follistatin. Activin A binds to the two forms of activin receptor type I (Act RI-A and Act RI-B) and two forms of activin receptor type II (Act RII-A and Act RII-B). Activins are homodimers or heterodimers of different β subunits. They are produced as precursor proteins with an amino terminal propeptide that is cleaved to release the C-terminal bioactive ligand.		
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Cancer, Immune System, Neurobiology, Stem Cells & Differentiation		
AA Sequence (monomer):	GLECDGKVINI CCKKQFFVSF KDIGWNDWII APSGYHANYC EGECPSHIAG TSGSSLSFHS TVINHYMRG HSPFANLKSC CVPTKLRPMS MLYYDDGQNI IKKDIQNMIV EECGCS		
Estimated pI:	7.48	Accession #:	P08476
NCBI Gene ID:	3624		

Product Name	Catalog Number	MW	AA
Recombinant Human/Murine/Rat Activin A (<i>Insect</i> derived)	120-14	26.0 kDa	232
Recombinant Human/Murine/Rat Activin A (<i>E.coli</i> derived)	120-14E	26.0 kDa	232
Recombinant Human/Murine/Rat Activin A (<i>CHO</i> derived)	120-14P	26.0 kDa	232
Animal-Free Recombinant Human/Murine/Rat Activin A	AF-120-14E	26.0 kDa	232
PeptoGMP® Recombinant Human Activin A	GMP120-14E	26.0 kDa	232

Adiponectin

Synonyms:	Acrp-30, GBP-28, APM-1, Gelatin-binding protein, AdipoQ		
Description:	Adiponectin is an adipose-derived secreted protein containing 236 amino acid residues. It is relatively abundant in humans and rodents, accounting for about 0.01% of total plasma protein. The circulating levels of adiponectin are decreased under conditions of obesity, insulin resistance, and type II diabetes. Disruption of adiponectin in mice causes insulin resistance and neointimal formation. Conversely, administration of recombinant adiponectin suppresses hepatic glucose production, and reverses insulin resistance associated with both lipoatrophy and obesity. The protective role of adiponectin is attributed to its anti-inflammatory properties (e.g. ability to suppress expression of TNF- α and class A scavenger receptor in macrophages).		
Research Areas:	Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology		
AA Sequence:			
Human Adiponectin:	RGHHHHHHHH ETTTQGPGLV LPLPKGACTG WMAGIPGHPG HNGAPGRDGR DGTTPGEKGEK GDPGLIGPKG DIGETGVPGA EGPRGFPGIQ GRKGEPGEGA YVYRSAFSVG LETYVTIPNM PIRFTKIFYN QQNHYDGSTG KFHCNIPGLY YFAYHITVYM KDVKVSFLFK DKAMLFTYDQ YQENNVDQAS GSVLLHLEVQ DQVWLQVYGE GERNGLYADN DNDSTFTGFL LYHDTN		
Murine Adiponectin:	RGHHHHHHHH VTTTEELAPA LVPPPKGTCA GWMAGIPGHP GHNGTPGRDG RDGTPGEKGE KGDAGLLGPK GETGDVGMTG AEGPRGFPGT PGRKGEPGEA AYVYRSAFSV GLETRVTVPN VPIRFTKIFY NQQNHYDGST GKFYCNIPGL YYFSYHITVY MKDVKVSFLFK KDKAVLFTYD QYQEKNVDDA SGSVLLHLEV GDQVWLQVYG DGDHNGLYAD NVNDSTFTGF LLYHDTN		
Estimated pI:	Human Adiponectin: 6.20 Murine Adiponectin: 6.32	Accession #:	Human Adiponectin: Q15848 Murine Adiponectin: Q60994
NCBI Gene ID:	Human Adiponectin: 9370 Murine Adiponectin: 11450		

Product Name	Catalog Number	MW	AA
Recombinant Human Adiponectin	450-24	25.9 kDa	236
Recombinant Murine Adiponectin	315-26	25.8 kDa	237

AITRL

Synonyms:

Activation-induced TNFR member Ligand, TNFSF18, GITRL, TL-6

Description:

AITRL, a member of the TNF superfamily, is expressed in endothelial cells, and signals through the AITR receptor. AITRL regulates T-cell proliferation and survival, and effectuates the interaction between T lymphocytes and endothelial cells. The AITRL gene codes for a type II transmembrane protein comprised of 177 amino acids, including a 28 amino acid cytoplasmic region, a 21 amino acid transmembrane domain and a 128 amino acid extracellular domain.

Research Areas:

Apoptosis, Immune System, Stem Cells & Differentiation

AA Sequence:

METAKEPCMA KFGPLPSKWQ MASSEPPCVN KVSDWKLEIL QNGLYLIYGQ VAPNANYNDV APFEVRLYKN
KDMIQTLTNK SKIQNVGGTY ELHVGDITDL IFNSEHQVLK NNTYWGIILL ANPQFIS

Estimated pI:

6.1

Accession #:

Q9UNG2

NCBI Gene ID:

8995

Product Name	Catalog Number	MW	AA
Recombinant Human AITRL	310-22	14.3 kDa	127

Amphiregulin

Synonyms:	AR, AREG, Colorectum cell-Derived Growth Factor (CRDGF)		
Description:	Amphiregulin is an EGF-related growth factor that signals through the EGF/TGF- α receptor, and stimulates growth of keratinocytes, epithelial cells and some fibroblasts. Amphiregulin also inhibits the growth of certain carcinoma cell lines. Synthesized as a transmembrane protein, Amphiregulin's extracellular domain is proteolytically processed to release the mature protein. There are 6 conserved cysteine residues, which form 3 intramolecular disulfide bonds essential for biological activity.		
Research Areas:	Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Wound Healing		
AA Sequence:	SVRVEQVVKP PQNKTESENT SDKPKRKKKG GKN GKNNRRNR KKKNPCNAEF QNFCIHGECK YIEHLEAVTC KCQQEYFGER CGEKSMKTHS MIDSSLK		
Estimated pI:	9.88	Accession #:	P15514
NCBI Gene ID:	374		

Product Name	Catalog Number	MW	AA
Recombinant Human Amphiregulin	100-55B	11.3 kDa	98

ANG-1

Synonyms:

Angiopoietin-1, ANGPT1, KIAA0003

Description:

Angiopoietin-1 (ANG-1) is a secreted ligand for Tie-2, a tyrosine-kinase receptor expressed primarily on vascular endothelial cells and early hematopoietic cells. ANG-1/Tie-2 signaling promotes angiogenesis during the development, remodeling, and repair of the vascular system. Transgenic mice lacking expression of either ANG-1 or Tie-2 fail to develop a fully functional cardiovascular system and die before birth. Postnatally, the angiogenic activity of ANG-1/Tie-2 is required during normal tissue repair and remodeling of the female endometrium in the menstrual cycle. ANG-1/Tie-2 signaling appears to be regulated by Angiopoietin-2 (ANG-2), a natural antagonist for Tie-2 that exerts its effects through an internal autocrine loop mechanism. In addition to suppressing endothelial cell activation by inhibiting the expression of adhesion and inflammatory molecules, ANG-1 enhances endothelial cell survival and capillary morphogenesis, and lessens capillary permeability. As such, ANG-1 has potential to become an effective therapeutic agent for treating various endothelium disorders, including several severe human pulmonary diseases. The efficacy of cell-based ANG-1 gene therapy for acute lung injury (ALI) has recently been studied in a rat model of ALI. The results of this study show that such therapy can markedly improve lung condition and suggest that ANG-1 therapy may represent a potential new strategy for the treatment and/or prevention of acute respiratory distress injury (ARDI), a significant cause of morbidity and mortality in critically ill patients.

Research Areas:

Angiogenesis/Cardiovascular, Apoptosis, Bone/Skeletal/Cartilage, Immune System

AA Sequence:

SNQRRSPENS GRRYNRIQHG QCAYTFILPE HDGNCRESTT DQYNTNALQR DAPHVEPDFS SQKLQHLEHV
MENYTQWLQK LENYIVENMK SEMAQIQQNA VQNHTATMLE IGTSLLSQTA EQTRKLT DVE TQVLNQTSRL
EIQLLENSLS TYKLEKQLLQ QTNEILKIHE KNSLLEHKIL EMEGKHKEEL DTLKEEKENL QGLVTRQTYI
IQELEKQLNR ATTNNSVLQK QQLELMDTVH NLVNLCTKEG VLLKGGKREE EKPFRCADV YQAGFNKSGI
YTIYINNMPE PKKVFCNMDV NGGGWTVIQH REDGSLDFQR GWKEYKMGFG NPSGEYWLGN EFIFAITSQR
QYMLRIELMD WEGNRRAYSQY DRFHIGNEKQ NYRLYLKGHT GTAGKQSSLI LHGADFSTKD ADNDNCMCKC
ALMLTGWWF DACGPSNLNG MFYTAGQNHG KLNIGKWHYF KGPSYSLRST TMMIRPLDFH HHHHH

Estimated pI:

6.45

Accession #:

Q15389

NCBI Gene ID:

284

Product Name	Catalog Number	MW	AA
Recombinant Human ANG-1	130-06	56.3 kDa	485

ANG-2

Synonyms:

Angiopoietin-2, ANGPT2

Description:

ANG-2 binds to the endothelial cell specific receptor Tie-2, but, in contrast to ANG-1, does not induce tyrosine phosphorylation. Consequently, ANG-2 modulates ANG-1 activation of Tie-2 and, depending on the physiological and biochemical environment, can act either as an agonist or antagonist of Tie-2 induced angiogenesis. The signaling interactions of ANG-1, ANG-2 and Tie-2, along with less characterized ANG-3 and ANG-4, are required for embryonic and adult angiogenesis. Physiologically, ANG-1 and ANG-2 are associated with sprouting, tube formation, and structural integrity of newly formed blood vessels. Mature human ANG-2 is a secreted protein containing 480 amino acid residues. ANG-2 is composed of an alpha-helix-rich “coiled coil” N-terminal domain and fibrinogen-like C-terminal domain. ANG-2 exists predominantly in the form of a disulfide-linked dimer.

Research Areas:

Angiogenesis/Cardiovascular, Apoptosis, Bone/Skeletal/Cartilage, Immune System

AA Sequence:

DAPLEYDDSV QRLQVLENIM ENNTQWLMKL ENYIQDNMKK EMVEIQQNAV QNQTAVMIEI GTNLLNQTAE
QTRKLTDEVA QVLNQTTTLE LQLEHSLST NKLEKQILDQ TSEINKLQDK NSFLEKKVLA MEDKHIIQLQ
SIKEEKDQLQ VLVSKQNSII EELEKKIVTA TVNNSVLQKQ QHDLMETVNN LLTMMSTSNS AKDPTVAKEE
QISFRDCAEV FKSGHTTNGI YTLTFPNSTE EIKAYCDMEA GGGGWTIIQR REDGSVDFQR TWKEYKVGFG
NPSGEYWLGN EFVSQLTNQQ RYVLKIHLKD WEGNEAYS LY EHFYLSSEEL NYRIHLKGLT GTAGKISSIS
QPGNDFSTKD GDNDKCICKC SQMLTGGWWF DACGPSNLNG MYYPQRQNTN KFNGIKWYYW KSGSYSLKAT
TMMIRPADFH HHHHH

Estimated pI:

5.43

Accession #:

O15123

NCBI Gene ID:

285

Product Name	Catalog Number	MW	AA
Recombinant Human ANG-2	130-07	50.1 kDa	435

ANGPTL-3

Synonyms:

Angiopoietin-like protein 3, ANG-5, ANGPT5

Description:

ANGPTL-3 (Angiopoietin-like protein 3) is a member of the angiopoietin family of structurally related proteins, characterized by a coiled N-terminal domain and a C-terminal fibrinogen-like domain. It is primarily expressed in the liver, and can exert activities related to both angiogenesis and lipid metabolism. ANGPTL-3 inhibits lipoprotein lipase (LPL) and endothelial lipase (EL), which has the effect of increasing plasma levels of triglycerides and HDL-associated cholesterol. The fibrinogen-like portion of the ANGPTL-3 protein can bind alpha-5/beta-3 integrins, leading to endothelial cell adhesion and migration.

Research Areas:

Angiogenesis/Cardiovascular, Diabetes/Weight Regulation, Lipid Metabolism

AA Sequence:

SRIDQDNSSF DSLSPPEKSR FAMLDDVKIL ANGLLQLGHG LKDFVHKTKG QINDIFQKLN IFDQSFYDLS
LQTSEIKEEE KELRRTTYKL QVKNEEVKNM SLELNSKLES LLEEKILLQQ KVKYLEEQLT NLIQNQPETP
EHPEVTSLKT FVEKQDNSIK DLLQTVEDQY KQLNQQHSQI KEIENQLRRT SIQEPTEISL SSKPRAPRTT
PFLQLNEIRN VKHDGIPAEC TTIYNRGEHT SGMYAIRPSN SQVFHVYCDV ISGSPWTLIQ HRIDGSQNFN
ETWENYKYGF GRLDGEFWLG LEKIYSIVKQ SNYVLRIELE DWKDNKHYIE YSFYLGNHET NYTLHLVAIT
GNVPNAIPEN KDLVFSTWDH KAKGHFNCPE GYSGGWVWHD ECGENNLNGK YNKPRAKSKP ERRRGLSWKS
QNGRLYSIKS TKMLIHPTDS ESFEHHHHHH HH

Estimated pI:

6.39

Accession #:

Q9Y5C1

NCBI Gene ID:

27329

Product Name	Catalog Number	MW	AA
Recombinant Human ANGPTL-3	130-18	52.9 kDa	452

ANGPTL-7

Synonyms:

Angiopoietin-related protein 7, Angiopoietin-like protein 7, Cornea-derived transcript 6 protein, CDT6

Description:

Angiopoietin-like 7 (ANGPTL-7), or Cornea-Derived Transcript 6 (CDT6), is a member of the angiopoietin family of structurally related proteins, characterized by a coiled N-terminal domain and a C-terminal fibrinogen like domain. While ANGPTL-7 shares the structural features of the angiopoietin family, it plays a critical role in blocking the vascular endothelial Tie2 receptor to which other family members bind. Through the blocking of the Tie2 receptor, ANGPTL-7 does not act as a “true” angiopoietin, but rather as a morphogen that contributes to the avascularity and transparency of the cornea during both embryo and adult development. Human ANGPTL-7 is expressed at high levels in the avascular corneal stromal layer, a site of pathological angiogenesis normally devoid of blood vessels, suggesting that the protein acts as a negative regulator of angiogenesis in a manner similar to that of angiopoietin-1 and angiopoietin-2. In mouse xenograft models, ANGPTL-7 overexpression has been shown to lead to increased extracellular matrix components typical of a mature corneal stromal layer, as well as the reduction of tumor growth and aberrant blood vessel formation. Overexpression in human melanoma models shows a contradictory, up-regulation of endostatin, an endogenous angiostatic factor, in comparison to the down-regulation observed in mouse models.

Research Areas:

Angiogenesis/Cardiovascular, Cancer

AA Sequence:

QKLSKHKTPA QPQLKAANCC EEVKELKAQV ANLSSLLSEL NKKQERDWVS VVMQVMELES NSKRMESRLT
DAESKYSEM NQIDIMQLQA AQTVTQTSAD AIYDCSSLYQ KNYRISGVYK LPPDDFLGSP ELEVFCDMET
SGGGWTIIQR RKSGLVSFYR DWKQYKQGFG SIRGDFWLGN EHIHRLSRQP TRLRVEMEDW EGNLRYAEYS
HFVLGNELNS YRLFNGNYTG NVGNDALQYH NNTAFSTKDK DNDNCLDKCA QLRKGGYWYN CCTDSNLNGV
YYRLGEHNKH LDGITWYGWH GSTYSLKRVE MKIRPEDFKP HHHHHHHH

Estimated pI:

7.56

Accession #:

O43827

NCBI Gene ID:

10218

Product Name	Catalog Number	MW	AA
Recombinant Human ANGPTL-7	130-22	38.2 kDa	328

ApoA-I

Synonyms:	Apolipoprotein A-I		
Description:	ApoA-I is a 29.0 kDa protein produced in the liver and intestine, and secreted as the predominant constituent of nascent high density lipoprotein (HDL) particle. ApoA-I, which is found exclusively in HDL, has a unique ability to capture and solubilize free cholesterol. This ApoA-I ability enables HDL to remove excess peripheral cholesterol, and return it to the liver for recycling and excretion. This process, called reverse cholesterol transport, is thought to inhibit atherogenesis. For this reason, HDL is also known as the “good cholesterol.” The therapeutic potential of ApoA-I has been recently assessed in patients with acute coronary syndromes, using a recombinant form of a naturally occurring variant of ApoA-I (called ApoA-I Milano). The availability of recombinant normal ApoA-I should facilitate further investigation into the potential usefulness of ApoA-I in preventing atherosclerotic vascular diseases.		
Research Areas:	Angiogenesis/Cardiovascular, Immune System, Inflammation		
AA Sequence:	MDEPPQSPWD RVKDLATVYV DVLKDSGRDY VSQFEGSALG KQLNLKLLDN WDSVTSTFSK LREQLGPVTVQ EFWDNLEKET EGLRQEMSKD LEEVKAKVQP YLDDFQKKWQ EEMELYRQKV EPLRAELQEG ARQKLHELQE KLSPLGEEMR DRARAHVDAL RTHLAPYSDE LRQRLAARLE ALKENGGARL AEYHAKATEH LSTLSEKAKP ALEDLRQGLL PVLESFKVSF LSALEEYTKK LNTQ		
Estimated pI:	5.10	Accession #:	P02647
NCBI Gene ID:	335		

Product Name	Catalog Number	MW	AA
Recombinant Human ApoA-I	350-11	28.2 kDa	244

ApoE2, E3 & E4

Synonyms:	Apolipoprotein E2, Apolipoprotein E3, Apolipoprotein E4		
Description:	ApoE belongs to a group of proteins that bind reversibly with lipoprotein and play an important role in lipid metabolism. In addition to facilitating solubilization of lipids, these proteins help to maintain the structural integrity of lipoproteins, serve as ligands for lipoprotein receptors, and regulate the activity of enzymes involved in lipid metabolism. Significant quantities of ApoE are produced in the liver and brain, and to some extent in almost every organ. ApoE is an important constituent of all plasma lipoproteins. Its interaction with specific ApoE receptor enables uptake of chylomicron remnants by liver cells, which is an essential step during normal lipid metabolism. It also binds with the LDL receptor (apo B/E). Defects in ApoE are a cause of hyperlipoproteinemia type III. ApoE exists in three major isoforms; E2, E3, and E4, which differ from one another by a single amino-acid substitution. Compared with E3 and E4, E2 exhibits the lowest receptor binding affinity. E2 allele carriers had significantly lower levels of total cholesterol, low-density lipoprotein cholesterol, and non-high-density lipoprotein cholesterol, as well as increased ApoE levels. E3 is the most common isoform and is present in 40-90% of the population. Individuals heterozygous for the ApoE4 allele are at higher risk of late-onset Alzheimer’s disease.		
Research Areas:	Angiogenesis/Cardiovascular, Immune System, Inflammation		
AA Sequence:			
Human ApoE2:	MKVEQAVETE PEPELRQQTE WQSGQRWELA LGRFWDYLRW VQTLSEQVQE ELLSSQVTQE LRALMDETMK ELKAYKSELE EQLTPVAEET RARLSKELQA AQARLGADME DVCGRLVQYR GEVQAMLGQS TEELRVRLAS HLRKLRLKRL RDADDLQKCL AVYQAGAREG AERGLSAIRE RLGPLVEQGR VRAATVGSLA GQPLQERAQA WGERLRARME EMGSRTDRDL DEVKEQVAEV RAKLEEQAQQ IRLQAEAFQA RLKSWFEPLV EDMQRQWAGL VEKVQAAVGT SAAPVPSDNH		
Human ApoE3:	MKVEQAVETE PEPELRQQTE WQSGQRWELA LGRFWDYLRW VQTLSEQVQE ELLSSQVTQE LRALMDETMK ELKAYKSELE EQLTPVAEET RARLSKELQA AQARLGADME DVCGRLVQYR GEVQAMLGQS TEELRVRLAS HLRKLRLKRL RDADDLQKRL AVYQAGAREG AERGLSAIRE RLGPLVEQGR VRAATVGSLA GQPLQERAQA WGERLRARME EMGSRTDRDL DEVKEQVAEV RAKLEEQAQQ IRLQAEAFQA RLKSWFEPLV EDMQRQWAGL VEKVQAAVGT SAAPVPSDNH		
Human ApoE4:	MKVEQAVETE PEPELRQQTE WQSGQRWELA LGRFWDYLRW VQTLSEQVQE ELLSSQVTQE LRALMDETMK ELKAYKSELE EQLTPVAEET RARLSKELQA AQARLGADME DVRGRLVQYR GEVQAMLGQS TEELRVRLAS HLRKLRLKRL RDADDLQKRL AVYQAGAREG AERGLSAIRE RLGPLVEQGR VRAATVGSLA GQPLQERAQA WGERLRARME EMGSRTDRDL DEVKEQVAEV RAKLEEQAQQ IRLQAEAFQA RLKSWFEPLV EDMQRQWAGL VEKVQAAVGT SAAPVPSDNH		
Estimated pI:	Human ApoE2: 5.23 Human ApoE3: 5.34 Human ApoE4: 5.48	Accession #:	Human ApoE2: P02649 Human ApoE3: P02649 Human ApoE4: P02649
NCBI Gene ID:	Human ApoE2: 348 Human ApoE3: 348 Human ApoE4: 348		

Product Name	Catalog Number	MW	AA
Recombinant Human ApoE2	350-12	34.3 kDa	300
Recombinant Human ApoE3	350-02	34.4 kDa	300
Recombinant Human ApoE4	350-04	34.4 kDa	300

Apo-SAA

Synonyms:	Serum amyloid A protein (SAA), Serum amyloid A apolipoprotein, Amyloid fibril protein AA, TP53I4, PIG4		
Description:	Human Apo-SAA is a 104 amino acid polypeptide that circulates primarily in association with high-density lipoproteins (HDL). The level of Apo-SAA, normally 1-5 µg/ml in plasma, increases 500-1000 fold within 24 hours of an inflammatory stimulus and, under these conditions, is the most abundant HDL apolipoprotein. The human SAA gene codes for a 122 amino acid polypeptide, which contains an 18 amino acid N-terminal signal sequence. Recombinant Apo-SAA is a consensus SAA molecule corresponding to human Apo-SAA1α, except for the presence of an N-terminal methionine, the substitution of asparagine for aspartic acid at position 60, and arginine for histidine at position 71 (the latter two substituted residues are present in Apo-SAA2β).		
Research Areas:	Angiogenesis/Cardiovascular, Immune System, Inflammation		
AA Sequence:	MRSFFSFLGE AFDGARDMWR AYSDMREANY IGSDKYFHAR GNYDAAKRGP GGVWAAEAIS NARENIQRFF GRGAEDSLAD QAANEWGRSG KDPNHFRPAG LPEKY		
Estimated pI:	7.16	Accession #:	P0DJI8
NCBI Gene ID:	6288		

Product Name	Catalog Number	MW	AA
Recombinant Human Apo-SAA	300-13	11.7 kDa	105

Apo-SAA1

Synonyms:	Serum amyloid A-1 protein		
Description:	Serum amyloid A proteins (SAA) represents a family of apolipoproteins that circulates in association with high-density lipoproteins (HDL). The level of Apo-SAA, normally 1-5 µg/ml in plasma, increases 500-1000 fold within 24 hours of an inflammatory stimulus and, under these conditions, is the most abundant HDL apolipoprotein. The human SAA gene codes for a 122 amino acid nonglycosylated polypeptide, which contains an 18 amino acid N-terminal sequence.		
Research Areas:	Angiogenesis/Cardiovascular, Immune System, Inflammation		
AA Sequence:	MRSFFSFLGE AFDGARDMWR AYSDMREANY IGSDKYFHAR GNYDAAKRGPGGVWAAEAISSDARENIQRFFGHGAEDSLADQAANEWGRSGKDPNHFRPAGLPEKY		
Estimated pI:	5.86	Accession #:	P0DJ18
NCBI Gene ID:	6288		

Product Name	Catalog Number	MW	AA
Recombinant Human Apo-SAA1	300-53	11.7 kDa	105
Animal-Free Recombinant Human Apo-SAA1	AF-300-53	11.7 kDa	105

APRIL

Synonyms:	A Proliferation-Inducing Ligand, TNFSF13, TRDL-1, TALL-2, CD256		
Description:	APRIL, a member of the TNF superfamily, is expressed in monocytes, macrophages, certain transformed cell lines, certain cancers of the colon, and lymphoid tissues. APRIL, along with another TNF family member, BAFF, competes for two receptors, TACI and BCMA. APRIL has the ability to stimulate proliferation of various tumor cell lines, including Jurkat T cells and MCF-7 carcinoma cells. Like BAFF, APRIL also stimulates the proliferation of B and T cells. The human APRIL gene codes for at least four alternatively spliced transcriptional variants, which give rise to different isoforms of the APRIL precursor protein. All isoforms can be cleaved by the protease, furin, to release a soluble C-terminal fragment, which comprises the TNF-like receptor binding of the APRIL precursor.		
Research Areas:	Apoptosis, Cancer, Immune System		
AA Sequence:			
Human APRIL:	AVLTQKQKKQ HSVLHLVPIN ATSKDDSDVT EVMWQPALRR GRGLQAQGYG VRIQDAGVYL LYSQVLFQDV TFTMGQVVS R EGQGRQETLF RCIRSMPSHP DRAYNSCYSA GVFHLHQGDI LSVIIPRARA KLNLSPHGTF LGFVKL		
Murine APRIL:	MRREVSRLQR SGGPSQKQGE RPWQSLWEQS PDVLEAWKDG AKSRRRRRAVL TQKHKKKHSV LHLVPVNITS KDSDVTEVMW QPVLRRGRGL EAQGDIVRVW DTGIYLLYSQ VLFHDVTFTM GQVVSREGQG RRETLCIR SMPSPDRAY NSCYSGVFH LHQGDIITVK IPRANAKLSL SPHGTFGLGFV KL		
Estimated pI:	Human APRIL: 10.01 Murine APRIL: 10.46	Accession #: Human APRIL: O75888 Murine APRIL: Q9D777	
NCBI Gene ID:	Human APRIL: 8741 Murine APRIL: 69583		

Product Name	Catalog Number	MW	AA
Recombinant Human APRIL	310-10C	16.3 kDa	146
Recombinant Murine APRIL	315-13	21.9 kDa	192

Arg-C

Synonyms:	None
Description:	Proteases (also called Proteolytic Enzymes, Peptidases, or Proteinases) are enzymes that hydrolyze the amide bonds within proteins or peptides. Most proteases act in a specific manner, hydrolyzing bonds at, or adjacent to specific residues, or a specific sequence of residues contained within the substrate protein or peptide. Proteases play an important role in most diseases and biological processes, including prenatal and postnatal development, reproduction, signal transduction, the immune response, various autoimmune and degenerative diseases, and cancer. They are also an important research tool, frequently used in the analysis and production of proteins. Arg-C specifically cleaves at the carboxyl side of Arginine residues. Arg-C has a sulfhydryl requirement; it is activated by dithiothreitol, cysteine, or other sulfhydryl-containing reagents. The presence of calcium ions is essential. The enzyme is inhibited by oxidizing agents and sulfhydryl reactants, and by Co2+, Cu2+, Cd2+, and heavy metal ions.
Research Areas:	Cancer, Immune System
AA Sequence:	GVGDIGSSDY CEKDIVCRVK PSAEFLSASK SVARMVFTPK TGYTGYCSGT LLNNSNSPKR QLFWSAAHCI STQKVANTLQ TYWLYDATGC DNDTLSDKAV TLTGGATLLH SHATRDLLLL ELKSAPPSGA YYAGWNSSAI ATKGTAIEGI HHPSGDLKKY SLGSVTALSS TIDGKKPLTK VAWTTGVTEG GSSGSGLFTH SSTSGLYQLRG GLYGGTSYCS APSDPDYYSQ LDGVWSSIKT YFSPHHHHHH HH
Estimated pI:	8.57
	Accession #: O87544

Product Name	Catalog Number	MW	AA
Recombinant Lysobacter Enzymogenes Arg-C	450-54	26.8 kDa	252

Arginine Deiminase

Synonyms:	ADI
Description:	Arginine Deiminase (ADI) is a microbial enzyme from Mycoplasma produced in <i>E.coli</i> . It has high affinity to L-arginine and hydrolyzes L-arginine to citrulline and ammonia. Low concentrations of ADI have been shown to inhibit proliferation in certain cultured cells by arresting the cell cycle in G ₁ and/or S phase. Higher concentrations of ADI lead to subsequent apoptosis.
Research Areas:	Apoptosis, Cancer
AA Sequence:	SVFDSKFKGI HVVSEIGELE SVLVHEPGRE IDYITPARLD ELLFSAILES HDARKEHKQF VAELKANDIN VVELIDLVAE TYDLASQEAK DKLIEEFLED SEPVLSEEHK VVVRNFLKAK KTSRELVEIM MAGITKTDLG IEADHELIVD PMPNLYFTRD PFASVGNGVT IHYMRVKVRQ RETLFSRFVF SNHPKLINTP WYDPSLKLS IEGGDVFIYN NDTLVVGVSE RTDLQTVTLL AKNIVANKEC EFKRIVAINV PKWTNLMHLD TWLTMLDKDK FLYSPIANDV FKFWDYDLVN GGAEPQPVEN GLPLEGLLQS IINKKPVLIP IAGEGASQME IERETHFDGT NYLAIRPGVV IGYSRNEKTN AALEAAGIKV LPFHGNQLSL GMGNARCMSM PLSRKDVKW
Estimated pI:	5.07
	Accession #: P23793

Product Name	Catalog Number	MW	AA
Recombinant Mycoplasma Arginine Deiminase	150-12	46.3 kDa	409

Artemin

Synonyms:	ART, ARTN, Enovin, Neublastin		
Description:	Artemin is a disulfide-linked homodimeric neurotrophic factor structurally related to GDNF, Artemin, Neurturin and Persephin. These proteins belong to the cysteine knot superfamily of growth factors that assume stable dimeric protein structures. Artemin, GDNF, Persephin and Neurturin all signal through a multicomponent receptor system, composed of RET (receptor tyrosine kinase) and one of the four GFRα (α1-α4) receptors. Artemin prefers the receptor GFRα3-RET, but will use other receptors as an alternative. Artemin supports the survival of all peripheral ganglia, such as sympathetic, neural crest and placodally-derived sensory neurons, and dopaminergic midbrain neurons. The functional human Artemin ligand is a disulfide-linked homodimer of two 12.0 kDa polypeptide monomers. Each monomer contains seven conserved cysteine residues, one of which is used for interchain disulfide bridging and the others are involved in intramolecular ring formation known as the cysteine knot configuration.		
Research Areas:	Immune System, Neurobiology, Stem Cells & Differentiation		
AA Sequence:	AGGPGSRARA AGARGCRLRS QLVPVRALGL GHRSEDLVRF RFCSGSCRRR RSPHDLSLAS LLGAGALRPP PGSRPVSQPC CRPTRYEAVS FMDVNSTWRT VDRLSATACG CLG		
Estimated pI:	12.67	Accession #:	Q5T4W7
NCBI Gene ID:	9048		

Product Name	Catalog Number	MW	AA
Recombinant Human Artemin	450-17	24.2 kDa	226
Animal-Free Recombinant Human Artemin	AF-450-17	24.2 kDa	226

4-1BB Ligand

Synonyms: TNFSF9, CD137L

Description: 4-1BBL, a member of the TNF superfamily, is expressed in B cells, dendritic cells, activated T cells and macrophages. 4-1BBL binds to its receptor 4-1BB, and provides a co-stimulatory signal for T cell activation and expansion. The human 4-1BBL gene codes for a 254 amino acid type II transmembrane containing a 28 amino acid cytoplasmic domain, a 21 amino acid transmembrane domain, and a 205 amino acid extracellular domain. The soluble form of 4-1BBL contains the TNF-like portion of the extracellular domain of 4-1BBL.

Research Areas: Angiogenesis/Cardiovascular, Apoptosis, Immune System, Transplantation

AA Sequence: MREGPELSPD DPAGLLDLRQ GMFAQLVAQN VLLIDGPLSW YSDPGLAGVS LTGGLSYKED TKELVVAKAG
VYYVFFQLEL RRVVAGEGSG SVSLALHLQP LRSAAGAAAL ALTVDLPPAS SEARNSAFGF QGRLLHLSAG
QRLGVHLHTE ARARHAWQLT QGATVLGLFR VTPEIPAGLP SPRSE

Estimated pI: 6.22 **Accession #:** P41273

NCBI Gene ID: 8744

Product Name	Catalog Number	MW	AA
Recombinant Human 4-1BB Ligand	310-11	19.5 kDa	185

4-1BB Receptor

Synonyms:

TNFRSF9, CD137, T-cell antigen ILA, CDw137

Description:

4-1BB receptor, a member of the TNFR superfamily of receptors, is mainly expressed on the surface of T cells, but also found in B cells, monocytes, and various transformed cell lines. 4-1BB receptor binds to 4-1BBL to provide a co-stimulatory signal for T lymphocytes. Signaling by 4-1BB receptor has been implicated in the antigen-presentation process and generation of cytotoxic T cells. The human 4-1BB receptor gene codes for a 255 amino acid type I transmembrane protein containing a 17 amino acid N-terminal signal sequence, a 169 amino acid extracellular domain, a 27 amino acid transmembrane domain and a 42 amino acid cytoplasmic domain.

Research Areas:

Apoptosis, Immune System

AA Sequence:

MERTSLQDP CSNCPAGTFC DNNRNQICSP CPPNSFSSAG GQRTCDICRQ CKGVFRTTRKE CSSTSNAECD
CTPGFHCLGA GCSMCEQDCK QGQELTKKGC KNCCFGTFND QKRGICRPWT NCSLDGKSVL VNGTKERDVV
CGPSPADLSP GASSVTPPAP AREPGHS

Estimated pI:

9.50

Accession #:

Q07011

NCBI Gene ID:

3604

Product Name	Catalog Number	MW	AA
Recombinant Human 4-1BB Receptor	310-15	17.7 kDa	167

B7-1, B7-2

Synonyms:

B7-1: B7, BB1, CD80; B7-2: B70, CD86, ETC1

Description:

B7-1 and B7-2 are transmembrane glycoproteins of the immunoglobulin superfamily that are expressed, along with the receptors CD28 and CTLA4, by antigen-presenting cells, and along with these receptors, constitute crucial co-stimulatory pathways for T and B cell regulatory responses. As members of the B7 family, B7-1 and B7-2 play principal roles in immunity, activating immune response and maintaining immune tolerance through engagement with CD28 and CTLA4. Co-stimulatory signals generated by B7-1 and B7-2 interactions with CD28 serve to stimulate T cell activation and prevent anergy through the amplification of T cell receptor (TCR) signaling. In contrast, interactions of the ligands with CTLA-4 serves to maintain T cell homeostasis and self-tolerance through the disruption of stimulatory signaling from B7 isoform bound CD28 complexes, and by inducing powerful inhibitory signals in T cells. B7-1 plays an important role in immune response through its amplification and regulation of T cell activity at peripheral inflammation sites. B7-1, like CTLA-4, is, however, only poorly expressed on resting dendritic cells, and its up-regulation is, therefore, considerably delayed upon immune activation. Conversely, B7-2 and CD28 are constitutively expressed by resting hematopoietic and T cells, respectively, and as a result are able to rapidly induce up-regulation upon immune activation, making them critical to the early co-stimulatory singling of immune response. Both B7-1 and B7-2 have been shown to demonstrate co-stimulatory activity in T-cell proliferation *in vitro* and elicit enhanced antitumor immune response *in vivo*.

Research Areas:

Allergy, Cancer, Immune System, Inflammation, Wound Healing

AA Sequence (monomer):

Human B7-1 Fc:

VIHVTKEVKE VATLSCGHNV SVEELAQTRI YWQKEKKMVL TMMSGDMNIW PEYKNRTIFD ITNNLSIVIL
ALRPSDEGTY ECVVLKYEKD AFKREHLAEV TLSVKADFPT PSISDFEIPT SNIRRIICST SGGFPEPHLS
WLENGEELNA INTTVSQDPE TELYAVSSKL DFNMTTNHSF MCLIKYGHLR VNQTFNWNTT KQEHFPDNGG
PKSCDKTHTC PPCPAPELLG GPSVFLFPPK PKDTLMISRT PEVTCVVVDV SHEDPEVKFN WYVDGVEVHN
AKTKPREEQY NSTYRVVSVL TVLHQDWLNG KEYKCKVSNK ALPAPIEKTI SKAKGQPREP QVYTLPPSRD
ELTKNQVSLT CLVKGFYPSD IAVEWESNGQ PENNYKTTTP VLDSGDGSFFL YSKLTVDKSR WQQGNVFSCS
VMHEALHNHY TQKSLSLSPG K

Human B7-2 Fc:

LKIQAYFNET ADLPCQFANS QNQSLSELVV FWQDQENLVL NEVYLGKEKF DSVHSKYMGR TSFDSDSWTL
RLHNLQIKDK GLYQCIHHK KPTGMIRIHQ MNSELSVLAN FSQPEIVPIS NITENVYINL TCSSIHGYPE
PKKMSVLLRT KNSTIEYDGV MQKSQDNVTE LYDVVISLSV SFPDVTSNMT IFCILETDKT RLLSSPFSIE
LEDPPQPPDH GGPKSCDKTH TCPPCPAPEL LGGPSVFLFP PKPKDTLMIS RTPEVTCVVV DVSHEDPEVK
FNWYVDGVEV HNAKTKPREE QYNSTYRVVS VLTVLHQDWL NGKEYKCKVS NKALPAPIEK TISKAKGQPR
EPQVYTLPPS RDELTKNQVS LTCLVKGFYP SDIAVEWESN GPENNYKTT PPVLDSGDSF FLYSKLTVDK
SRWQQGNVFS CSVMHEALHN HYTQKSLSLS PGK

Estimated pI:

Human B7-1 Fc: 6.08
Human B7-2 Fc: 5.97

Accession #:

Human B7-1 Fc: P33681
Human B7-2 Fc: P42081

NCBI Gene ID:

Human B7-1 Fc: 941
Human B7-2 Fc: 942

Product Name	Catalog Number	MW	AA
Recombinant Human B7-1 Fc	310-32	50.0 kDa	441
Recombinant Human B7-2 Fc	310-33	51.2 kDa	453

B7-H2

Synonyms: Inducible Costimulator-Ligand (ICOSL), B7 homolog 2, B7-like protein Gl50, B7-related protein 1 (B7RP-1), CD275

Description: B7-H2, or inducible costimulator-ligand (ICOSL), is a transmembrane, co-stimulatory ligand of the T cell-specific surface receptor Inducible T-cell costimulator (ICOS) that belongs to the B7 family and immunoglobulin superfamily, along with B7-1, B7-2, PD-L1 (B7-H1) and PD-L2. Whereas expression of inducible B7-1 and B7-2 is largely confined to specialized antigen-presenting cells of lymphoid tissues, B7-H2 expression occurs constitutively in hematopoietic and non-hematopoietic cells of peripheral organs. This striking difference in expression indicates that these three B7 ligands may enable temporally and spatially-specific regulation of T cell response through non-competitive CD28 interaction; marking a unique function of B7-H2 in immune reactions of nonlymphoid organs in which T cells have migrated to peripheral tissues having only limited expression of B7-1 and B7-2. Expression of B7-H2 has been shown to be differentially regulated by both TNF- α and IL-1 β , and inducible to a lesser extent by CD40 or lipopolysaccharide stimulation. B7-H2's binding to ICOS on activated T cells results in both positive and negative effects on immune response, including its own downregulation. As a member of the immunoglobulin superfamily, B7-H2 is crucially involved in inflammatory immune reactions and the control of excessive immune response; however, unlike B7-1 and B7-2, B7-H2 has not been shown to influence immunity through interaction with CTLA-4, and has only been shown to have restricted interaction with CD28. Interaction of B7-H2 with ICOS has been identified as a critical event in the immunosuppression of tumor-associated memory CD4+ T cells, and has been linked to various auto-immune disorders.

Research Areas: Allergy, Cancer, Immune System, Inflammation, Proliferation

AA Sequence (monomer): DTQEKEVRAM VGSDELSCA CPEGSRFDLN DVYVYWQTSE SKTVVTYHIP QNSSLENVDS RYRNRALMSP
AGMLRGDFSL RLFNVTPQDE QKFHCLVLSQ SLGFQEVLSV EVTLHVAANF SVPVVSAPHS PSQDELTFTC
TSINGYPRPN VYWINKTDNS LLDQALQNDT VFLNMRGLYD VVSVLRART PSVNIGCCIE NVLLQQNLTV
GSQTGNDIGE RDKITENPVS TGEKNAATGG PKSCDKTHTC PPCPAPELLG GPSVFLFPPK PKDTLMISRT
PEVTCVVVDV SHEDPEVKFN WYVDGVEVHN AKTKPREEQY NSTYRVVSVL TVLHQDWLNG KEYKCKVSNK
ALPAPIEKTI SKAKGQPREP QVYTLPPSRD ELTKNQVSLT CLVKGFYPSD IAVEWESNGQ PENNYKTTTP
VLDSGGSFFL YSKLTVDKSR WQQGNVFSCS VMHEALHNHY TQKSLSLSPG K

Estimated pI: 5.96 **Accession #:** O75144

NCBI Gene ID: 23308

Product Name	Catalog Number	MW	AA
Recombinant Human B7-H2 Fc	310-37	104.9 kDa	942

BAFF

Synonyms:

B-cell Activating Factor belonging to the TNF family, TNFSF13B, TNFSF20, TALL-1, BLyS, THANK, ZTNF4, CD257

Description:

BAFF, a member of the TNF superfamily of ligands, is expressed in T cells, macrophages, monocytes and dendritic cells. BAFF is involved in stimulation of B and T cell function, and is an important survival and maturation factor for peripheral B cells. BAFF signals through three different TNF receptors, TACI, BCMA and BAFF-R. The human BAFF gene codes for a 285 amino acid type II transmembrane protein containing a 46 amino acid cytoplasmic domain, a 21 amino acid transmembrane domain, and a 218 amino acid extracellular domain.

Research Areas:

Apoptosis, Cancer, Immune System, Stem Cells & Differentiation

AA Sequence:

AVQGPEETVT QDCLQLIADS ETPTIQKGSY TFVPWLLSFK RGSALLEEKEN KILVKETGYF FIYGQVLYTD
KTYAMGHLIQ RKKVHVFGDE LSLVTLFRCI QNMPETLPNN SCYSAGIAKL EEGDELQLAI PRENAQISLD
GDVTFFGALK LL

Estimated pI:

4.73

Accession #:

Q9Y275

NCBI Gene ID:

10673

Product Name	Catalog Number	MW	AA
Recombinant Human BAFF	310-13	17.0 kDa	152
Animal-Free Recombinant Human BAFF	AF-310-13	17.0 kDa	152

BAFF Receptor

Synonyms:	BAFFR, TNFRSF13C, BLyS Receptor 3, CD268		
Description:	BAFF Receptor (BAFFR), a member of the TNFR superfamily, is highly expressed in the spleen, lymph nodes, and resting B cells, and to some extent in activated B cells, resting CD4+ cells and peripheral blood leukocytes. BAFFR is a type III transmembrane protein that binds with high specificity to BAFF (TNFSF13B). BAFFR/BAFF signaling plays a critical role in B cell survival and maturation.		
Research Areas:	Immune System, Stem Cells & Differentiation		
AA Sequence:	MRRGPRSLRG RDAPAPTPCV PAECFDLLVR HCVACGLLRT PRPKPAGASS PAPRTALQPQ ESGAGAGEA ALPLPG		
Estimated pI:	12.20	Accession #:	Q96RJ3
NCBI Gene ID:	115650		

Product Name	Catalog Number	MW	AA
Recombinant Human BAFF Receptor	310-13R	7.7 kDa	76

BCA-1/BLC (CXCL13)

Synonyms:	B-cell Attracting Chemokine-1, BLR1 Ligand		
Description:	BCA-1/BLC, a CXC chemokine, is expressed in the liver, spleen, lymph nodes, appendix and stomach. It exerts its activities through its only receptor, CXCR5. BCA-1/BLC is a potent chemoattractant for B lymphocytes, and induces weak chemotactic response in T cells and macrophages. It manifests no activity on neutrophils and monocytes.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:			
Human BCA-1 (CXCL13):	VLEVYYTSLR CRCVQESSVF IPRRFIDRIQ ILPRGNGCPR KEIIVWKKNK SIVCVDPQAE WIQRMMEVLR KRSSSTLPVP VFKRKIP		
Murine BCA-1/BLC (CXCL13):	ILEAHYTNLK CRCSGVISTV VGLNIIDRIQ VTPPGNGCPK TEVVIWTKMK KVICVNPRAK WLQRLLRHVQ SKSLSSTPQA PVSKRRAA		
Estimated pI:	Human BCA-1 (CXCL13): 11.6 Murine BCA-1/BLC: 12.1	Accession #:	Human BCA-1 (CXCL13): O43927 Murine BCA-1/BLC (CXCL13): O55038
NCBI Gene ID:	Human BCA-1 (CXCL13): 10563 Murine BCA-1/BLC: 55985		

Product Name	Catalog Number	MW	AA
Recombinant Human BCA-1 (CXCL13)	300-47	10.3 kDa	87
Recombinant Murine BCA-1/BLC (CXCL13)	250-24	9.8 kDa	88

BCMA

Synonyms:

B-Cell Maturation Antigen, TNFRSF17, BCM, CD269

Description:

BCMA, a member of the TNF receptor superfamily, binds to BAFF and APRIL. BCMA is expressed on mature B-cells and other B-cell lines, and plays an important role in B-cell development, function and regulation. BCMA also has the capability to activate NF-κB and JNK. The human BCMA gene codes for a 184 amino acid type I trans-membrane protein, which contains a 54 amino acid extracellular domain, a 23 amino acid transmembrane domain, and a 107 amino acid cytoplasmic domain.

Research Areas:

Apoptosis, Immune System, Inflammation

AA Sequence:

AGQCSQNEYF DSL LHACIPC QLRCSSNTTP LTCQRYCNAS VTNSVKGTNA

Estimated pI:

8.72

Accession #:

Q02223

NCBI Gene ID:

608

Product Name	Catalog Number	MW	AA
Recombinant Human BCMA	310-16	5.3 kDa	50

BD-1, -2, -3, -4, -5

Synonyms: **BD-1:** Beta-Defensin 1, DEFB1, HBD1; **BD-2:** Beta-Defensin 2, DEFB2, DEFB4A, Skin-Antimicrobial Peptide 1, SAP1; **BD-3:** Beta-Defensin 3, DEFB3, DEFB103A; **BD-4:** Beta-Defensin 104, DEFB4; **BD-5:** Beta-Defensin 5, BD5, DEFB5, DEFB105a

Description: Defensins (alpha and beta) are cationic peptides with a broad spectrum of antimicrobial activity that comprise an important arm of the innate immune system. The α -defensins are distinguished from the β -defensins by the pairing of their three disulfide bonds. To date, six human β -defensins have been identified; BD-1, BD-2, BD-3, BD-4, BD-5 and BD-6. β -defensins are expressed on some leukocytes and at epithelial surfaces. In addition to their direct antimicrobial activities, they can act as chemoattractants towards immature dendritic cells and memory T cells. The β -defensin proteins are expressed as the C-terminal portion of precursors, and are released by proteolytic cleavage of a signal sequence and, in some cases, a propeptide sequence. β -defensins contain a six-cysteine motif that forms three intra-molecular disulfide bonds.

Research Areas: Chemotaxis, Immune System, Stem Cells & Differentiation

AA Sequence:

Human BD-1 (36 a.a): DHYNCVSSGG QCLYSACPIF TKIQGTCYRG KAKCCK

Human BD-1 (47 a.a): GNFLTGLGHR SDHYNCVSSG GQCLYSACPI FTKIQGTCYR GKAKCCK

Human BD-2: GIGDPVTCLK SGAICHVFVC PRRYKQIGTC GLPGTKCCKK P

Murine BD-2: AVGSLKSIGY EAELDHCHTN GGYCVRAICP PSARRPGSCF PEKNPCKKYM K

Human BD-3: GIINTLQKYY CRVRGGRAV LSCLPKEEQI GKCSTRGRKC CRRKK

Murine BD-3: KKINNPVSCL RKGGRWCNRC IGNTRQIGSC GVPFLKCKKR K

Human BD-4: EFELDRICGY GTARCRKKCR SQEYRIGRCP NTYACCLRKW DESLLNRTKP

Human BD-5: GLDFSQPFPS GEFAVCECK LGRGKCRKEC LENEKPDGNC RLNFLCCRQR I

Estimated pI:	Human BD-1 (36 a.a):	9.80	Accession #:	Human BD-1 (36 a.a.):	P60022
	Human BD-1 (47 a.a):	10.06		Human BD-1 (47 a.a):	P60022
	Human BD-2:	10.55		Human BD-2:	O15263
	Murine BD-2:	10.55		Murine BD-2:	O15263
	Human BD-3:	12.10		Human BD-3:	P81534
	Murine BD-3:	10.70		Murine BD-3:	Q9WTL0
	Human BD-4:	10.32		Human BD-4:	Q8WTQ1
	Human BD-5:	9.35		Human BD-5:	Q8NG35
NCBI Gene ID:	Human BD-1 (36 a.a.):	1672	NCBI Gene ID:	Human BD-3:	55894
	Human BD-1 (47 a.a):	1672		Murine BD-3:	27358
	Human BD-2:	1673		Human BD-4:	140596
	Murine BD-2:	1673		Human BD-5:	245908

Product Name	Catalog Number	MW	AA
Recombinant Human BD-1 (36 a.a.)	300-51	3.9 kDa	36
Recombinant Human BD-1 (47 a.a)	300-51A	5.0 kDa	47
Recombinant Human BD-2	300-49	4.3 kDa	41
Recombinant Murine BD-2	250-40	5.5 kDa	41
Recombinant Human BD-3	300-52	5.1 kDa	45
Animal-Free Recombinant Murine BD-3	AF-250-41	4.6 kDa	41
Recombinant Human BD-4	300-65	6.0 kDa	50
Recombinant Human BD-5	300-68	5.8 kDa	51
Animal-Free Recombinant Human BD-5	AF-300-68	5.8 kDa	51

BDNF

Synonyms:

Brain-Derived Neurotrophic Factor, Abrineurin

Description:

BDNF is a member of the NGF family of neurotrophic growth factors. Like other members of this family, BDNF supports neuron proliferation and survival. BDNF can bind to a low affinity cell surface receptor called LNGFR, which also binds other neurotrophins such as NGF, NT-3 and NT-4. However, BDNF mediates its neurotrophic properties by signaling through a high affinity cell surface receptor called gp145/trkB. BDNF is expressed as the C-terminal portion of a 247 amino acid polypeptide precursor, which also contains a signal sequence of 18 amino acid residues and a propeptide of 110 amino acid residues.

Research Areas:

Neurobiology, Stem Cells & Differentiation

AA Sequence (monomer):

MHSDPARRGE LSVCDSEW VTAADKKTAV DMSGGTVTVL EKVPVSKGQL KQYFYETKCN PMGYTKEGCR
GIDKRHWNSQ CRTTQSYVRA LTMDSKKRIG WRFIRIDTSC VCTLTIKRGR

Estimated pI:

10.12

Accession #:

P23560

NCBI Gene ID:

627

Product Name	Catalog Number	MW	AA
Recombinant Human/Murine/Rat BDNF	450-02	27.0 kDa	240
Animal-Free Recombinant Human/Murine/Rat BDNF	AF-450-02	27.0 kDa	240

Betacellulin

Synonyms:	BTC		
Description:	Betacellulin is an EGF-related polypeptide growth factor that signals through the EGF receptor. It is produced in several tissues, including the pancreas, small intestine, and in certain tumor cells. Betacellulin is a potent mitogen for retinal pigment epithelial cells and vascular smooth muscle cells. Human Betacellulin is initially synthesized as a glycosylated 32.0 kDa transmembrane precursor protein, which is processed by proteolytic cleavage to produce the mature sequence.		
Research Areas:	Cancer, Immune System, Neurobiology, Stem Cells & Differentiation		
AA Sequence:			
Human Betacellulin:	DGNSTRSPET NGLLCGDPEE NCAATTTQSK RKGHFSRCPK QYKHYCIKGR CRFVVAEQTP SCVCDEGYIG ARCERVDLFY		
Murine Betacellulin:	DGNTRTRPET NGSLCGAPGE NCTGTTPRQK VKTHFSRCPK QYKHYCIHGR CRFVVDEQTP SCICEKGYFG ARCERVDLFY		
Estimated pI:	Human Betacellulin: 9.63 Murine Betacellulin: 9.15	Accession #:	Human Betacellulin: P35070 Murine Betacellulin: Q05928
NCBI Gene ID:	Human Betacellulin: 685 Murine Betacellulin: 12223		

Product Name	Catalog Number	MW	AA
Recombinant Human Betacellulin	100-50	9.0 kDa	80
Recombinant Murine Betacellulin	315-21	9.0 kDa	80

BMP-2

Synonyms:	Bone Morphogenetic Protein-2, BMP-2A		
Description:	BMPs (Bone Morphogenetic Proteins) belong to the TGF-β superfamily of structurally related signaling proteins. BMP-2 is a potent osteoinductive cytokine, capable of inducing bone and cartilage formation in association with osteoconductive carriers such as collagen and synthetic hydroxyapatite. In addition to its osteogenic activity, BMP-2 plays an important role in cardiac morphogenesis, and is expressed in a variety of tissues, including lung, spleen, brain, liver, prostate ovary and small intestine. The functional form of BMP-2 is a 26 kDa protein composed of two identical 114 amino acid polypeptide chains linked by a single disulfide bond. Each BMP-2 monomer is expressed as the C-terminal part of a precursor polypeptide, which also contains a 23 amino acid signal sequence for secretion, and a 259 amino acid propeptide. After dimerization of this precursor, the covalent bonds between the propeptide (which is also a disulfide-linked homodimer) and the mature BMP-2 ligand are cleaved by a furin-type protease.		
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Bone/Skeletal/Cartilage, Immune System, Neurobiology, Stem Cells & Differentiation		
AA Sequence (monomer):			
Human/Murine/Rat BMP-2 (E.coli):	MQAKHKQRKR LKSSCKRHPL YVDFSVDVGN DWIVAPPGYH AFYCHGECPF PLADHLNSTN HAIVQTLVNS VNSKIPKACC VPTELSAISM LYLDENEKVV LKNYQDMVVE GCGCR		
Human/Murine/Rat BMP-2 (CHO):	QAKHKQRKRL KSSCKRHPLY VDFSVDVGNW WIVAPPGYHA FYCHGECFPF LADHLNSTNH AIVQTLVNSV NSKIPKACCV PTELSAISML YLDENEKVVL KNYQDMVVEG CGCR		
Estimated pI:	Human/Murine/Rat BMP-2 (<i>E.coli</i>): 9.00 Human/Murine/Rat BMP-2 (<i>CHO</i>): 8.99	Accession #:	Human/Murine/Rat BMP-2 (<i>E.coli</i>): P12643 Human/Murine/Rat BMP-2 (<i>CHO</i>): P12643
NCBI Gene ID:	Human/Murine/Rat BMP-2 (<i>E.coli</i>): 650 Human/Murine/Rat BMP-2 (<i>CHO</i>): 650		

Product Name	Catalog Number	MW	AA
Recombinant Human/Murine/Rat BMP-2 (<i>E.coli</i> derived)	120-02	26.0 kDa	230
Animal-Free Recombinant Human/Murine/Rat BMP-2 (<i>E.coli</i> derived)	AF-120-02	26.0 kDa	230
Recombinant Human/Murine/Rat BMP-2 (<i>CHO</i>)	120-02C	25.8 kDa	228

BMP-3

Synonyms:	Bone Morphogenetic Protein-3, Osteogenin, BMP-3A		
Description:	TGF-β family members are key modulators of cell proliferation, differentiation, matrix synthesis, and apoptosis. As implied by their name, BMPs initiate, promote, and regulate the development, growth, and remodeling of bone and cartilage. In addition to this role, BMPs are also involved in prenatal development and postnatal growth, remodeling and maintenance of a variety of other tissues and organs. BMP-3 is abundantly found in adult bone and, to a lesser extent, fetal cartilage. BMP-3 inhibits osteogenesis and bone formation by activating a signaling cascade that antagonizes the signaling of pro-osteogenic BMPs.		
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Bone/Skeletal,/Cartilage, Immune System, Neurobiology, Stem Cells & Differentiation		
AA Sequence (monomer):	MQWIEPRNCA RRYLKVDFAD IGWSEWIISP KSFDAYYCSG ACQFMPKSL KPSNHATIQS IVRAVGVPVG IPEPCCVPEK MSSLSILFFD ENKNVVLKVY PNMTVESCAC R		
Estimated pI:	9.10	Accession #:	P12645
NCBI Gene ID:	651		

Product Name	Catalog Number	MW	AA
Recombinant Human BMP-3	120-24B	25.2 kDa	222

BMP-4

Synonyms:	Bone Morphogenetic Protein-4, BMP-2B, DVR4		
Description:	Bone morphogenetic proteins (BMPs) constitute a subfamily within the TGF-β superfamily of structurally related signaling proteins. Members of this superfamily are widely distributed throughout the body, and are involved in diverse physiological processes during both pre- and postnatal life. Like BMP-7, BMP-4 is involved in the development and maintenance of bone and cartilage. Reduced expression of BMP-4 is associated with a number of bone diseases, including the heritable disorder Fibrodysplasia Ossificans Progressiva.		
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Bone/Skeletal/Cartilage, Immune System, Neurobiology, Stem Cells & Differentiation		
AA Sequence (monomer):			
Human BMP-4 (HeLa cell):	HHSQRARKKN KNCRRHSLYV DFSDVGWNDW IVAPPGYQAF YCHGDCPFPL ADHLNSTNHA IVQTLVNSVN SSIPKACCVP TELSAISMLY LDEYDKVVLK NYQEMVVEGC GCR		
Human BMP-4 (E.coli):	KKNKNCRRHS LYVDFSDVGW NDWIVAPPGY QAFYCHGDCP FPLADHLNST NHAIVQTLVN SVNSSIPKAC CVPTELSAIS MLYLDEYDKV VLKNYQEMVV EGCGR		
Murine BMP-4:	KKNKNCRRHS LYVDFSDVGW NDWIVAPPGY QAFYCHGDCP FPLADHLNST NHAIVQTLVN SVNSSIPKAC CVPTELSAIS MLYLDEYDKV VLKNYQEMVV EGCGR		
Estimated pI:	Human BMP-4 (HeLa cell): 7.53 Human BMP-4 (E.coli): 6.04 Murine BMP-4: 6.04	Accession #:	Human BMP-4 (HeLa cell): P12644 Human BMP-4 (E.coli): P12644 Murine BMP-4: P21275
NCBI Gene ID:	Human BMP-4 (HeLa cell): 652 Human BMP-4 (E.coli): 652 Murine BMP-4: 12159		

Product Name	Catalog Number	MW	AA
Recombinant Human BMP-4 (HeLa cell derived)	120-05	25.6 kDa	226
Recombinant Human BMP-4 (E.coli derived)	120-05ET	23.9 kDa	212
Animal-Free Recombinant Human BMP-4 (E.coli derived)	AF-120-05ET	23.9 kDa	212
Recombinant Murine BMP-4	315-27	23.9 kDa	212

BMP-5

Synonyms:	Bone Morphogenetic Protein-5
Description:	TGF-β family members are key modulators of cell proliferation, differentiation, matrix synthesis, and apoptosis. As implied by their name, BMPs initiate, promote, and regulate the development, growth, and remodeling of bone and cartilage. In addition to this role, BMPs are also involved in prenatal development and postnatal growth, remodeling, and maintenance of a variety of other tissues and organs. BMP-5 is expressed in the nervous system, lungs and liver. It is a known regulator for dendritic growth in sympathetic neurons. BMP-5 is a 454 amino acid precursor protein that is cleaved to release the biologically active C-terminal mature protein.
Research Areas:	Bone/Skeletal/Cartilage, Immune System, Neurobiology, Stem Cells & Differentiation
AA Sequence (monomer):	AANKRKNQNR NKSSSHQDSS RMSSVGDYNT SEQKQACKKH ELYVSFRDLG WQDWIIAPEG YAAFYCDGEC SFPLNAHMNA TNHAIVQTLV HLMFPDHVPK PCCAPTKLNA ISVLYFDDSS NVILKKYRNM VVRSCGCH
Estimated pI:	9.35
NCBI Gene ID:	653
	Accession #: P22003

Product Name	Catalog Number	MW	AA
Recombinant Human BMP-5	120-39	31.2 kDa	276

BMP-6

Synonyms:	Bone Morphogenetic Protein-6, VGR, VG-1-related protein		
Description:	TGF-β family members are key modulators of cell proliferation, differentiation, matrix synthesis, and apoptosis. As implied by their name, BMPs initiate, promote, and regulate the development, growth, and remodeling of bone and cartilage. In addition to this role, BMPs are also involved in prenatal development and postnatal growth, remodeling, and maintenance of a variety of other tissues and organs. Increasing evidence indicates that BMP-Smad signaling has a tumor suppressing activity, and that BMPs can inhibit tumor growth. BMP-6 is abnormally expressed in breast cancer cell lines, however, its function in promoting breast cancer development is unknown. The mature and functional form of BMP-6 is a homodimer of two identical 139 amino acid polypeptide chains linked by a single disulfide bond. Each monomer is expressed as the C-terminal part of a precursor polypeptide, which contains a 20 amino acid signal peptide and a 354 amino acid propeptide. This precursor undergoes intracellular dimerization, and upon secretion it is processed by a furin-type protease.		
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Bone/Skeletal/Cartilage, Immune System, Neurobiology, Stem Cells & Differentiation		
AA Sequence (monomer):	VSSASDYNSS ELKTACRKHE LYVSFQDLGW QDWIIPKGY AANYCDGECS FPLNAHMNAT NHAIVQTLVH LMNPEYVPKP CCAPTCLNAI SVLYFDDNSN VILKKYRNMV VRACGCH		
Estimated pI:	7.48	Accession #:	P22004
NCBI Gene ID:	654		

Product Name	Catalog Number	MW	AA
Recombinant Human BMP-6	120-06	26.2 kDa	234

BMP-7

Synonyms:	Bone Morphogenetic Protein-7, Osteogenic Protein-1 (OP-1)		
Description:	TGF-β family members are key modulators of cell proliferation, differentiation, matrix synthesis, and apoptosis. As implied by their name, BMPs initiate, promote, and regulate the development, growth, and remodeling of bone and cartilage. In addition to this role, BMPs are also involved in prenatal development and postnatal growth, re-modeling, and maintenance of a variety of other tissues and organs. BMP-7, also known as osteogenic protein-1 or OP-1, is a potent bone inducing agent, which in the presence of an appropriate osteoconductive carrier (e.g. collagen sponge or synthetic hydroxyapatite) can be used in the treatment of bone defects. A bone-graft substitute, called OP-1™ implant, made of recombinant human BMP-7 associated with bovine bone-derived collagen, has recently been approved by the FDA as a device for treating critical-size bone fractures. The potential use of BMP-7 in dental reconstructive surgeries is currently under investigation.		
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Bone/Skeletal/Cartilage, Immune System, Neurobiology, Stem Cells & Differentiation		
AA Sequence (monomer):	MANVAENSSS DQRQACKKHE LYVSFRDLGW QDWIIAPEGY AAYYCEGECA FPLNSYMNAT NHAIVQTLVH FINPETVPKP CCAPTQLNAI SVLYFDDSSN VILKKYRNMV VRACGCH		
Estimated pI:	6.05	Accession #:	P18075
NCBI Gene ID:	655		

Product Name	Catalog Number	MW	AA
Recombinant Human BMP-7	120-03P	26.4 kDa	234

BMP-10

Synonyms:	Bone Morphogenetic Protein-10
Description:	Bone morphogenetic proteins (BMPs) constitute a subfamily within the TGF-β superfamily of structurally related signaling proteins. Members of this superfamily are widely distributed throughout the body and are involved in diverse physiological processes during both pre- and postnatal life. BMP-10 plays a crucial role in the development of the embryonic heart by acting to stimulate and maintain cardiomyocyte proliferation. It can signal through various receptor complexes usually containing BMPR-1A, BMPR-1B, ALK1, ALK3, or ALK6. The interaction of BMP-10 with its specific receptors can induce signaling initiated by the phosphorylation of SMAD transcription factors, including SMAD1, SMAD5, or SMAD8, but can also induce SMAD independent processes. BMP-10 is structurally related to BMP-9, and both can inhibit endothelial cell proliferation and migration.
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Bone/Skeletal/Cartilage, Stem Cells & Differentiation
AA Sequence (monomer):	NAKGN YCKRT PLYIDFKEIG WDSWIIAPPG YEAYECRGVC NYPLAEHLTP TKHAI IQALV HLKNSQKASK ACCVPTKLEP ISILYLDKGV VTYKFKYEGM AVSECGCR
Estimated pI:	9.27
	Accession #: O95393
NCBI Gene ID:	27302

Product Name	Catalog Number	MW	AA
Recombinant Human BMP-10	120-40	24.4 kDa	216

BMP-13/CDMP-2

Synonyms: Bone Morphogenetic Protein-13, GDF-6, Cartilage-Derived Morphogenetic Protein-2 (CDMP-2)

Description: BMP-13 is expressed in hypertrophic chondrocytes during embryonic development of long bones. Continued post-natal expression of BMP-13 in articular cartilage suggests that it plays a regulatory role in the growth and maintenance of articular cartilage. Adenovirus-mediated BMP-13 gene transfer to rabbit bone marrow stem cells have been reported to augment periosteal repair of osteochondral defects. The functional form of BMP-13/CDMP-2 is a disulfide-linked homodimer of two 120 amino-acid polypeptide chains. This 27.5 kDa protein is obtained by proteolytic processing of a biologically inactive precursor protein of 97.7 kDa.

Research Areas: Angiogenesis/Cardiovascular, Apoptosis, Bone/Skeletal/Cartilage, Immune System, Stem Cells & Differentiation

AA Sequence (monomer): TAFASRHGKR HGKKSRLRCS KKPLHVNFEK LGWDDWIIAP LEYEAYHCEG VCDFPLRSHL EPTNHAI IQT LMNSMDPGST PPSCCVPTKL TPISILYIDA GNNVVYKQYE DMVVESCGCR

Estimated pI: 9.78 **Accession #:** Q6KF10

NCBI Gene ID: 392255

Product Name	Catalog Number	MW	AA
Recombinant Human BMP-13/CDMP-2	120-04	27.0 kDa	240
Animal-Free Recombinant Human BMP-13/CDMP-2	AF-120-04	27.0 kDa	240

BRAK (CXCL14)

Synonyms:

Breast and Kidney-expressed chemokine, bolekin, NJAC

Description:

Breast and Kidney-expressed chemokine (BRAK) is a CXC chemokine expressed in normal tissue in the absence of inflammatory stimuli, and infrequently expressed in cancer cell lines. BRAK is known to be a highly selective monocyte chemoattractant. However, main function and receptor selectivity is unknown at this time. BRAK contains the four highly conserved cysteine residues present in CXC chemokines. The sequence of the mature protein consists of 87 amino acid residues, and is approximately 30% homologous to the sequences of MIP-2 alpha and beta.

Research Areas:

Cancer, Chemotaxis, Immune System, Wound Healing

AA Sequence:

SKCKCSRKGP KIRYSDVKKL EMKPKYPHCE EKMVIITTKS VSRYRGQEH LHPKLQSTKR FIKWYNWNE KRRVYEE

Estimated pI:

10.12

Accession #:

O95715

NCBI Gene ID:

9547

Product Name	Catalog Number	MW	AA
Recombinant Human BRAK (CXCL14)	300-50	9.4 kDa	77

BTLA

Synonyms:

B- and T-lymphocyte attenuator, B- and T-lymphocyte-associated protein, CD272

Description:

B- and T-lymphocyte attenuator (BTLA), or CD272, is a type I transmembrane co-inhibitory receptor of the CD28 receptor family that is involved in modulating adaptive immune responses and T cell co-stimulation. BTLA acts in a manner similar to PD-1 and CTLA-4, the other inhibitory receptors of the CD28 family, as an anti-inflammatory molecule crucial to dampening immune response. Expressed most prominently in T cells, including Th1, Th2, CD4+, and CD8+ cells, BTLA can also be found in B cells, NK cells, dendritic cells and macrophages. Ligation of BTLA with HVEM, a member of the TNF receptor super family (TNFRSF), induces tyrosine phosphorylation of ITIM and ITSM motifs found within the BTLA cytoplasmic domain, resulting in association with SHP-1 and SHP-2. While HVEM’s interactions with the ligands LIGHT and Lymphotoxin- α induce a powerful stimulatory immune response, the interaction of BTLA and HVEM attenuates T cell proliferation and the production of cytokines including IL-2, IL-10 and IFN- γ . This interaction between BTLA and HVEM is the only receptor-ligand interaction known to bridge the CD28 and TNFR families. Recent studies provide evidence that engagement of BTLA’s third cytoplasmic motif, Grb2, may transmit a positive signal, suggesting both a co-inhibitory and co-stimulatory role for BTLA. Dysfunction of the BTLA pathway plays a role in the pathogenesis of numerous autoimmune diseases and cancers.

Research Areas:

Cancer, Immune System, Inflammation

AA Sequence (monomer):

KESCDVQLYI KRQSEHSILA GDPFELECPV KYCANRPHVT WCKLNGTTCV KLEDRQTSWK EEKNISFFIL
HFEPVLPNDN GSYRCSANFQ SNLIESHSTT LYVTDVKSAS ERPSKDEMAS GGPKSCDKTH TCPPCPAPEL
LGGPSVFLFP PKPKDTLMIS RTPEVTCVVV DVSHEDPEVK FNWYVDGVEV HNAKTKPREE QYNSTYRVVS
VLTVLHQDWL NGKEYKCKVS NKALPAPIEK TISKAKGQPR EPQVYTLPPS RDELTKNQVS LTCLVKGFYP
SDIAVEWESN GQPENNYKTT PPVLDSDSGF FLYSKLTVDK SRWQQGNVFS CSVMHEALHN HYTQKSLSL
PGK

Estimated pI: 6.88 **Accession #:** Q7Z6A9

NCBI Gene ID: 15188

Product Name	Catalog Number	MW	AA
Recombinant Human BTLA Fc	310-43	39.8 kDa	353

C1 Inhibitor

Synonyms:	Plasma protease C1 inhibitor, C1inh, C1 Esterase Protein, C1-inhibiting factor, Serpin G1						
Description:	C1 inhibitor is a member of the serpin family of structurally related proteins, and is the primary regulator of the immune complement system. C1 inhibitor is a protease inhibitor that functions to inhibit the complement system in order to prevent over-activation or spontaneous activation. Inhibition is achieved by binding to and irreversibly inhibiting the C1r and C1s proteases of the C1 complex, which has the effect of shutting down all subsequent downstream events in the complement activation cascade. C1 inhibitor can also inhibit various other proteases, including Kallikrein, Factor XIa, and Factor XIIa. Deficiencies in C1 inhibitor are the primary cause of hereditary angioedema (HAE, hereditary angioneurotic edema), a disease characterized by edema in the respiratory and gastrointestinal tracts. In certain clinical situations, the direct administration of C1 inhibitor can be used to treat HAE and certain other conditions.						
Research Areas:	Apoptosis, Immune System, Inflammation						
AA Sequence:	NPNATSSSSQ DPESLQDRGE GKVATTVISK MLFVEPILEV SSLPTTNSTT NSATKITANT TDEPTTQPTT EPTTQPTIQP TQPTTQLPTD SPTQPTTGSF CPGPVTLCSD LESHSTEAVL GDALVDFSLK LYHAFSAMKK VETNMAFSPF SIASLLTQVL LGAGENTKTN LESILSYPKD FTCVHQALKG FTTKGVTSVS QIFHSPDLAI RDTFVNASRT LYSSSPRVLS NNSDANLELI NTWVAKNTNN KISRLLDSLP SDTRLVLLNA IYLSAKWKTT FDPKKTRMEP FHFKNSEIKV PMMNSKKYPV AHFIDQTLKA KVGQLQLSHN LSLVILVPQN LKHRLEDMEQ ALSPSVFKAI MEKLEMSKFQ PTLTLLPRIK VTTSQDMLSI MEKLEFFDFS YDLNLCGLTE DPDLQVSAMQ HQTVLELTET GVEAAAASAI SVARTLLVFE VQQPFLFVLW DQQHKFPVFM GRVYDPRA						
Estimated pI:	6.08		Accession #:		P05155		
NCBI Gene ID:	710						

Product Name	Catalog Number	MW	AA
Recombinant Human C1 Inhibitor	130-20	52.8 kDa	478

C5a

Synonyms:	Complement Component 5a, Complement 5a, CPAMD4, C3 and PZP-like alpha-2-macroglobulin domain-containing protein 4		
Description:	Complement 5a (C5a) is an enzymatically generated glycoprotein belonging to the anaphylatoxin family of structurally and functionally related proteins. Generated upon the activation of the complement system, C5a, together with C4a, C3a, and the membrane attack complex (C5b-9), functions as a central player in host defense by inducing smooth muscle cell contraction, increased vascular permeability, and histamine release from mast cells and basophilic leukocytes through cell degranulation. In addition to acting as a direct mediator of localized inflammatory response, C5a also initiates both the synthesis and release of IL-8 from monocytes and bronchial epithelial cells, stimulates the proliferation of neurons and hepatocytes, and functions as a potent chemoattractant. Where C5a deficiency, a rare defect of the complement pathway caused by the mutation of the C5a gene, is associated with susceptibility to severe infections, excessive C5a activation has been linked to liver fibrosis, sepsis, adult respiratory distress syndrome, rheumatoid arthritis, Alzheimer’s disease, and ischemic heart disease. Human C5a shares 60% and 54% sequence identity to mouse and rat C5a, respectively. The human C5 gene encodes a 1,676 amino acid glycoprotein that is comprised of a disulfide-linked C5 alpha and a C5 beta chain, the former of which contains the active, 74 amino acid C5a anaphylatoxin chain.		
Research Areas:	Angiogenesis/Cardiovascular, Chemotaxis, Immune System, Inflammation		
AA Sequence:	TLQKKIEEIA AKYKHSVVKK CCYDGACVNN DETCEQRAAR ISLGPRCIKA FTECCVVASQ LRANISHKDM QLGR		
Estimated pI:	9.68	Accession #:	P01031
NCBI Gene ID:	727		

Product Name	Catalog Number	MW	AA
Recombinant Human C5a	300-70	8.28 kDa	74
Recombinant Animal-Free Human C5a	AF-300-70	8.28 kDa	74

C10 (CCL6)

Synonyms:	MRP-1		
Description:	Murine C10 belongs to the CC chemokine family and is expressed in myelopoietic bone marrow cultures when stimulated with GM-CSF, M-CSF, IL-3 or IL-4. It signals primarily through the CCR1 receptor. C10 is chemotactic for B cells, CD4+ T cells, monocytes and NK cells and also exhibits powerful suppressive activity on colony formation by different lineages of hematopoietic progenitors. The C10 contains the four highly conserved cysteine residues present in CC chemokines. The mature protein contains 95 amino acid residues.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:	GLIQEIEKED RRYNPPIIHQ GFQDTSSDCC FSYATQIPCK RFIYYFPTSG GCIKPGIIFI SRRGTQVCAD PSDRRVQRCL STLKQGPRSG NKVIA		
Estimated pI:	10.03	Accession #:	P27784
NCBI Gene ID:	20305		

Product Name	Catalog Number	MW	AA
Recombinant Murine C10 (CCL6)	250-06	10.7 kDa	95

Carboxypeptidase-B

Synonyms:	Cpb1		
Description:	Proteases (also called Proteolytic Enzymes, Peptidases, or Proteinases) are enzymes that hydrolyze the amide bonds within proteins or peptides. Most proteases act in a specific manner, hydrolyzing bonds at, or adjacent to, specific residues or a specific sequence of residues contained within the substrate protein or peptide. Proteases play an important role in most diseases and biological processes including prenatal and postnatal development, reproduction, signal transduction, the immune response, various autoimmune and degenerative diseases, and cancer. They are also an important research tool, frequently used in the analysis and production of proteins. Carboxypeptidase-B sequentially cleaves C-terminal K and R residues.		
Research Areas:	Cancer, Immune System		
AA Sequence:	ASGHSYTKYN NWETIEAWIQ QVATDNPDLV TQSVIGTTFE GRNMYVLKIG KTRPNKPAIF IDCGFHAREW ISPAFCQWFV REAVRTYNQE IHMKQLLDEL DFYVLPVVNI DGYVYTWTKD RMWRKTRSTM AGSSCLGVDP NRNFNAGWCE VGASRSPCSE TYCGPAPESE KETKALADFI RNNLSTIKAY LTIHSYSQMM LYPYSYDYKL PENYEELNAL VKGAAKELAT LHGTTYTYGP GATTIYPAAG GSDDWSYDQG IKYSFTFELR DTGFFGFLLP ESQIRQTCEE TMLAVKYIAN YVREHLY		
Estimated pI:	5.68	Accession #:	P19223
NCBI Gene ID:	24271		

Product Name	Catalog Number	MW	AA
Recombinant Rat Carboxypeptidase-B	400-00	35.1 kDa	307

Cardiotrophin-1

Synonyms:	CT-1
Description:	CT-1 is a member of the IL-6 family of cytokines which also includes LIF, CNTF, OSM (Oncostatin M), IL-11, IL-6 and possibly NNT-1/BSF-3. CT-1 is a pleiotropic cytokine which is expressed in various tissues including the adult heart, skeletal muscle, ovary, colon, prostate and fetal lung, and signals through the LIF receptor and the gp130 receptor subunit. CT-1 has the ability to induce cardiac myocyte hypertrophy, and enhances the survival of cardiomyocyte and different neuronal populations. Biologically active human CT-1 is synthesized as a 201 amino acid polypeptide lacking a hydrophobic N-terminal secretion signal sequence.
Research Areas:	Angiogenesis/Cardiovascular, Bone, Skeletal, Cartilage, Immune System, Neurobiology, Stem Cells & Differentiation
AA Sequence:	
Human Cardiotrophin-1:	SRREGSLEDP QTDSSVSLLP HLEAKIRQTH SLAHLITKYA EQLIQEYVQL QGDPFGLPSF SPPRLPVAGL SAPAPSHAGL PVHERLRDLA AALAALPPLL DAVCRRQAEL NPRAPRLLRR LEDAARQARA LGAAVEALLA ALGAANRGPR AEPPAATASA ASATGVFFAK VLGLRVCGLY REWLSRTEGD LGQLLPGGSA
Murine Cardiotrophin-1:	SQREGSLEDH QTDSSISFLP HLEAKIRQTH NLARLLTKYA EQLLEEYVQQ QGEFFGLPGF SPPRLPLAGL SGPAPSHAGL PVSERLRQDA AALSVPALL DAVRRRQAEL NPRAPRLLRS LEDAARQVRA LGAAVETVLA ALGAAARGPG PEPVTVATLF TANSTAGIFS AKVLGFHVCG LYGEWVS RTE GDLGQLVPGG VA
Estimated pI:	Human Cardiotrophin-1: 9.64 Murine Cardiotrophin-1: 6.62
NCBI Gene ID:	Human Cardiotrophin-1: 1489 Murine Cardiotrophin-1: 13019
Accession #:	Human Cardiotrophin-1: Q16619 Murine Cardiotrophin-1: Q60753

Product Name	Catalog Number	MW	AA
Recombinant Human Cardiotrophin-1	300-32	21.1 kDa	200
Recombinant Murine Cardiotrophin-1	250-25	21.3 kDa	202

sCD4

Synonyms: Cluster determinant 4, T-cell surface glycoprotein CD4, Interleukin IL-16 receptor, T-cell surface antigen T4/Leu-3, Leu-3(a, b), OKT4(a-f), L3T4 (mouse)

Description: Cluster determinant 4 (CD4), a type I transmembrane glycoprotein of the immunoglobulin family of receptors, plays an integral role in signal transduction and T-cell differentiation, development and activation. CD4 is constitutively expressed on the surface of various immune cells, including monocytes, macrophages, eosinophils, dendritic cells, and most prominently T lymphocytes, where it functions as an essential co-receptor and co-ligand for T-cell receptor (TCR) and major histocompatibility complex class II (MHC-II) molecules. Ligation by MHC-II molecules on the surface of antigen-presenting cells can serve to influence adaptive immunity by facilitating helper T-cell activation and macrophage differentiation, while ligation by pro-inflammatory cytokine IL-16 can contribute to innate immunity by chemoattracting CD4-expressing peripheral immune cells along an IL-16 gradient for their recruitment and activation at sites of inflammation. The protean functionality of CD4 extends past immunity as CD4 also notably serves as the major receptor for HIV-1 and human herpes virus 7 (HHV-7) infections. During HIV pathogenesis, CD4 acts instrumentally as a high-affinity entry receptor for the internalization of HIV-1 following binding of the viral envelope glycoprotein gp120 to CD4's extracellular domain.

Research Areas: AIDS/HIV, Chemotaxis, Immune System, Inflammation

AA Sequence: KKVVLGKKGD TVELTCTASQ KKSIIQFHWKN SNQIKILGNQ GSFLTkgPSK LNDRADSRRS LWDQGNFPLI
IKNLKIEDSD TYICEVEDQK EEVQLLVFGL TANSDTHLLQ GQSLTLTLES PPGSSPSVQC RSPRGKNIQG
GKTLSSVSQLE LQDSGTWTCT VLQNQKKVEF KIDIVVLAfQ KASSIVYKKE GEQVEFSFPL AFTVEKLTGS
GELWWQAERA SSSKSWITFD LKNKEVSVKR VTQDPKLQMG KKLPLHLTLp QALPQYAGSG NLTlALEAKT
GKLHQEVNLV VMRAfQLQKN LTCEVWGPTS PKLMLSLKLE NKEAKVSKRE KAVVVLNPEA GMWQCLLSDS
GQVLLESNIK VLPTWSTPVQ P

Estimated pI: 9.57 **Accession #:** P01730

NCBI Gene ID: 920

Product Name	Catalog Number	MW	AA
Recombinant Human sCD4	110-11	41.3 kDa	371

sCD8α

Synonyms:	CD8A, T-cell surface glycoprotein CD8 alpha chain, T-lymphocyte differentiation antigen T8/Leu-2		
Description:	Cluster of differentiation 8 (CD8), a type I transmembrane glycoprotein of the immunoglobulin family of receptors, plays an integral role in signal transduction, and T-cell differentiation and activation. CD8 is predominantly expressed on T-cells as a disulfide-linked heterodimer of CD8α and CD8β, where it functions as a co-receptor, along with T-cell receptor (TCR), for major histocompatibilty complex class I (MHC-I) molecules; whereas its counterpart, CD4, acts as a co-receptor for MHC-II molecules. CD8 exists on the cell surface, where the CD8α chain is essential for binding to MHC-I. CD8 is also expressed on a subset of T-cells, NK cells, monocytes and dendritic cells as disulfide-linked homodimers of CD8α. Ligation of MHC-I/peptide complexes presented by antigen-presenting cells (APCs), triggers the recruitment of lymphocyte-specific protein tyrosine kinase (Lck), which leads to lymphokine production, motility and cytotoxic T lymphocyte (CTL) activation. Once activated, CTLs play a crucial role in the clearance of pathogens and tumor cells. Differentiation of naïve CD8+ T-cells into CTLs is strongly enhanced by IL-2, IL-12 and TGF-β1.		
Research Areas:	Cancer, Immune System		
AA Sequence:	SQFRVSPLDR TWNLGETVEL KCQVLLSNPT SGCSWLFQPR GAAASPTFLL YLSQNKPKAA EGLDTQRFSG KRLGDTFVLT LSDFRRENEG YYFCSALSNS IMYFSHFVPV FLPAKPTTTP APRPPTPAPT IASQPLSLRP EACRPAAGGA VHTRGLDFAC D		
Estimated pI:	9.2	Accession #: P01732	
NCBI Gene ID:	925		

Product Name	Catalog Number	MW	AA
Recombinant Huamn sCD8α	310-41	17.6 kDa	161

sCD14

Synonyms: soluble CD14, Monocyte differentiation antigen CD14

Description: CD14 is a cell surface-anchored glycoprotein that is expressed predominantly by monocytes and tissue macrophages. CD14 associates with MD-2 (LY-96) and TLR4 to form a receptor complex, which signals specifically in response to bacterial lipopolysaccharide (LPS) binding. The CD14/MD-2/TLR4 receptor complex signals via MyD88, TIRAP, and TRAF6, and ultimately activates NF- κ B. CD14 also exists in a soluble form, designated as sCD14, which is capable of specifically binding LPS in the extracellular space.

Research Areas: Immune System, Inflammation

AA Sequence (monomer):	TTPECELDD	EDFRCVCNFS	EPQPDWSEAF	QCVSAVEVEI	HAGGLNLEPF	LKRVDADADP	RQYADTVKAL
	RVRRLTVGAA	QVPAQLLVGA	LRVLAYSRLK	ELTLEDLKIT	GTMPPLPLEA	TGLALSSRLR	RNVSWATGRS
	WLAELQQWLK	PGLKVLISIAQ	AHSPAFSCEQ	VRAFPALTSL	DSLSDNPGLGE	RGLMAALCPH	KFPATQNLAL
	RNTGMETPTG	VCAALAAAGV	QPHSLDLSHN	SLRATVNPSA	PRCMWSSALN	SLNLSFAGLE	QVPKGLPAKL
	RVLDLSCNRL	NRAPODELPE	EVDNLTLDGN	PFLVPGTALP	HEGSMNSGVV	P	

Estimated pI: 5.32 **Accession #:** P08571

NCBI Gene ID: 929

Product Name	Catalog Number	MW	AA
Recombinant Human sCD14	110-01	35.6 kDa	331

sCD22

Synonyms:

Description:

Research Areas:

AA Sequence:

Estimated pI:

NCBI Gene ID:

soluble CD22, Leu-14, B-Lymphocyte cell adhesion molecule, BL-CAM, Siglec-2

CD22 is a B-lineage restricted 135 kDa glycoprotein whose cell surface expression is limited to resting and activated B lymphocytes. The physiological role of CD22 is still unknown. Targeted disruption of CD22 in mice results in a reduced level of surface IgM on peripheral B cells, suggesting a role for CD22 in limiting antigen receptor signaling. CD22 is a member of the Ig gene superfamily that uniquely binds a sialic acid-dependent ligand.

Cancer, Immune System

SKWVFEHPET LYAWEGACVW IPCTYRALDG DLESFILFHN PEYNKNTSKF DGTRLYESTK DGKVPSEQKR
VQFLGDKNKN CTLSIHPVHL NDSGQLGLRM ESKTEKWMER IHLNVSERPF PPHIQLPPEI QESQEVTLTC
LLNFSCYGYP IQLQWLLEGV PMRQAAVTST SLTIKSVFTR SELKFSPQWS HHGKIVTCQL QDADGKFLSN
DTVQLNVKHT PKLEIKVTPS DAIVREGDSV TMTCEVSSSN PEYTTVSWLK DGTSLKKQNT FTLNLREVTK
DQSGKYCCQV SNDVGPGRSE EVFLQVQYAP EPSTVQILHS PAVEGSQVEF LCMSLANPLP TNYTWYHNGK
EMQGRTEEKV HIPKILPWAH GTYSCVAENI LGTGQRGPGA ELDVQYPPKK VTTVIQNMPM IREGDTVTLT
CNYNSSNPSV TRYEWKPHGA WEEPSLGVLK IQNVGWDNTT IACARCNSWC SWASPVALNV QYAPRDVVRV
KIKPLSEIHS GNSVSLQCDF SSSHPKEVQF FWEKNGRLLG KESQLNFDSI SPEDAGSYSC WVNNSIGQTA
SKAWTLEVLY APRRLRVSMS PGDQVMEGKS ATLTCESDAN PPVSHYTWFD WNNQSLPHHS QKLRLEPVKV
QHSGAYWCQG TNSVGKGRSP LSTLTVYYSP ETIGRR

6.76

Accession #: P20273

933

Product Name	Catalog Number	MW	AA
Recombinant Human sCD22	100-01	75.0 kDa	666

sCD23

Synonyms:

soluble CD23, CD23 antigen, Fc-epsilon-RII, Lymphocyte IgE receptor, BLAST-2

Description:

CD23, the low affinity receptor for IgE, belongs to the C-type lectin structural family and plays a role in the regulation of IgE synthesis and IgE mediated activities. It is found both as a transmembrane receptor protein and in a soluble form, which is generated by proteolytic cleavage of membrane-bound CD23. The predominant soluble form of CD23 (sCD23) consists of 172 amino acids corresponding to the extracellular domain of the full length precursor. sCD23, in addition to binding IgE, also exerts a number of IgE-independent activities, such as promoting the activation and differentiation of B-cells and stimulating the release of pro-inflammatory cytokines from monocytes.

Research Areas:

Immune System, Inflammation

AA Sequence:

MELQVSSGFV CNTCPEKWIN FQRKCYFYGK GTKQVWHARY ACDDMEGQLV SIHSPPEEQDF LTKHASHTGS
WIGLRNLDLK GEFIWVDGSH VDYSNWAPGE PTSRSQGEDC VMMRGSGRWN DAFCDRKLGA WVCURLATCT
PPASEGSAES MGPDSRPDPD GRLPTPSAPL HS

Estimated pI:

5.36

Accession #:

P06734

NCBI Gene ID:

2208

Product Name	Catalog Number	MW	AA
Recombinant Human sCD23	310-26	19.2 kDa	172

sCD27 Ligand

Synonyms:	soluble CD27 Ligand, CD27L, TNFSF7, CD70		
Description:	CD27 Ligand, a type II transmembrane protein, is a member of the TNF superfamily. It is expressed on activated T and B lymphocytes, as well as NK cells. CD27L and its receptor (CD27) regulate the immune response by promoting T-cell expansion and differentiation, as well as NK enhancement. CD27 signaling can act as a co-stimulatory effector to sustain the survival of CD8+ T cells, primarily by inducing increased expression of the IL-2 gene. Full length human CD27L is a 193 amino acid protein, consisting of a 17 amino acid cytoplasmic domain, a 21 amino acid transmembrane domain, and a 155 amino acid extracellular domain. Human soluble CD27L corresponds to the 155 amino acid extracellular domain of the full length CD27L protein.		
Research Areas:	Immune System		
AA Sequence:	HHHHHHHPS PGGSGGQRFA QAQQQLPLES LGWDVAELQL NHTGPQQDPR LYWQGGPALG RSFLHGPELD KGQLRIHRDG IYMVHIQVTL AICSSTASR HHPTTLAVGI CSPASRSISL LRISFHQGCT IASQRLTPLA RGDTLCTNLT GTLLPSRNTD ETFFGVQWVR P		
Estimated pI:	10.27	Accession #:	P32970
NCBI Gene ID:	970		

Product Name	Catalog Number	MW	AA
Recombinant Human sCD27 Ligand	310-30	18.8 kDa	171

sCD28

Synonyms:

soluble CD28 Fc, T-cell-specific surface glycoprotein CD28, TP44

Description:

CTLA-4 and CD28 are receptors of the immunoglobulin superfamily that are expressed, along with the transmembrane glycoproteins B7-1 and B7-2, by antigen-presenting cells, and with these ligands constitute crucial co-stimulatory pathways for T and B cell regulatory responses. It is through engagement with CD28 and CTLA-4 that the B7 family ligands B7-1 and B7-2 play principal roles in immunity by activating immune response and maintaining immune tolerance. Co-stimulatory signals generated by B7-1 and B7-2 interactions with CD28 serve to stimulate T cell activation and prevent anergy through the amplification of T cell receptor (TCR) signaling. In contrast, interactions of the ligands with CTLA-4 serves to maintain T cell homeostasis and self-tolerance through the disruption of stimulatory signaling from B7 isoform-bound CD28 complexes, and by inducing powerful inhibitory signals in T cells. CTLA-4, like B7-1, is only poorly expressed on resting dendritic cells; therefore, up-regulation of their interaction and resultant amplification and regulation of T cell activity at peripheral inflammation sites is considerably delayed upon immune activation. Conversely, B7-2 and CD28 are constitutively expressed by resting hematopoietic and T cells, respectively, and as a result are able to rapidly induce up-regulation upon immune activation, making them critical to the early co-stimulatory signaling of immune response. Unlike B7-1 and B7-2, the ligands PD-L1 (or B7-H1) and B7-H2, which also belong to the B7 family, have not been shown to influence immunity through interaction with CTLA-4. B7-H2 has been shown to have restricted interaction with CD28. The difference in expression of B7-1, B7-2 and B7-H2 may enable temporally and spatially-specific regulation of T cell response through non-competitive CD28 interaction.

Research Areas:

Allergy, Cancer, Immune System, Inflammation, Wound Healing

AA Sequence (monomer):

NKILVKQSPM LVAYDNAVNL SCKYSYNLFS REFRASLHKG LDSAVEVCVV YGNYSQQLQV YSKTGFNCDG
KLGNESVTFY LQNLVYNQTD IYFCKIEVMY PPPYLDNEKS NGTIIHVKGK HLCPSPLFPG PSKPGGPKSC
DKTHTCPPCP APELLGGPSV FLFPPKPKDT LMISRTPEVT CVVVDVSHED PEVKFNWYVD GVEVHNAKTK
PREEQYNSTY RVVSVLTVLH QDWLNGKEYK CKVSNKALPA PIEKTISKAK GQPREPQVYT LPPSRDELTK
NQVSLTCLVK GFYPSDIAVE WESNGQPENN YKTTTPVLDS DGSFFLYSKL TVDKSRWQQG NVFSCSV MHE
ALHNHYTQKS LSLSPGK

Estimated pI:

8.60

Accession #:

P10747

NCBI Gene ID:

940

Product Name	Catalog Number	MW	AA
Recombinant Human sCD28 Fc	310-34	82.4 kDa	734

sCD30 Ligand

Synonyms: soluble CD30 Ligand, TNFSF8, CD153, CD30L

Description: CD30 ligand (CD30L) is a type-II membrane-associated glycoprotein belonging to the TNF superfamily and is expressed primarily on certain B cells, T cells, and monocytes. CD30L binds specifically to CD30 (receptor), which is expressed on activated, but not resting, B and T cells, in lymphomas and various chronically inflamed tissues. CD30L/CD30 interactions initiate a signaling cascade that can ultimately lead to the activation of NF- κ B. CD30L/CD30 signaling exerts pleiotropic effects on normal cells, including cell death, differentiation, and cell division. Certain diseases, including Hodgkin's lymphoma, allergic inflammation, diabetes (in NOD mice), and mycobacterial infection can also be affected by CD30L/CD30 signaling. The CD30L gene encodes for a 234 amino acid type II transmembrane protein, which contains a 37 amino acid cytoplasmic sequence, a 25 amino acid transmembrane domain and a 172 amino acid extracellular domain.

Research Areas: Allergy, Cancer, Diabetes/Weight Regulation, Immune System, Inflammation

AA Sequence: HHHHHHHHPS PGGSGGQRTD SIPNSPDNVP LKGNCSEDL LCILKRAPFK KSWAYLQVAK HLNKTKLSWN
KDGILHGVRV QDGNLVIQFP GLYFIICQLQ FLVQCPNNVS DLKLELLINK HIKKQALVTV CESGMQTKHV
YONLSOFLLD YLOVNTTISV NVDTFOYIDT STFPLENVLS IFLYSNSD

Estimated pI: 8.69 **Accession #:** P32971

NCBI Gene ID: 944

Product Name	Catalog Number	MW	AA
Recombinant Human sCD30 Ligand	450-42	21.3 kDa	188

sCD34

Synonyms:

soluble CD34, Hematopoietic progenitor cell antigen CD34

Description:

CD34 is a highly glycosylated type I membrane protein that is selectively expressed on hematopoietic stem cells and vascular endothelium. It has been widely used as a molecular marker for the identification, isolation, and manipulation of hemopoietic stem cells and progenitors. CD34 can function as a regulator of hemopoietic cell adhesion by mediating the attachment of stem cells to bone marrow stromal cells or other bone marrow components. The full length human CD34 is a 385 amino acid protein, consisting of a 31 amino acid signal sequence, a 74 amino acid cytoplasmic domain, a 21 amino acid transmembrane domain and a 259 amino acid extracellular domain.

Research Areas:

Stem Cells & Differentiation

AA Sequence:

LDNNGTATPE LPTQGTFSNV STNVSQYQETT TPSTLGSTSL HPVSQHGNEA TTNITETTVK FTSTSVITSV
YGNTNSSVQS QTSVISTVFT TPANVSTPET TLKPSLSPGN VSDLSTTSTS LATSPTKPYT SSSPILSDIK
AEIKCSGIRE VKLTQGICLE QNKTSSCAEF KKDRGEGLAR VLCGEEQADA DAGAQVCSLL LAQSEVRPQC
LLLVLANRTE ISSKLQLMKK HQSDLKKLGI LDFTEQDVAS HQSYSQKT

Estimated pI:

5.51

Accession #:

P28906

NCBI Gene ID:

947

Product Name	Catalog Number	MW	AA
Recombinant Human sCD34	310-31	27.4 kDa	258

sCD40 Ligand

Synonyms:	soluble CD40 Ligand, TNFSF5, TRAP, CD154, Gp39, T-BAM		
Description:	CD40, a member of the TNF receptor superfamily, is a cell surface protein expressed on B cells, dendritic cells, monocytes, thymic epithelial cells and, at low levels, on T cells. Signaling through CD40 plays an important role in the proliferation and differentiation of B cells, and is critical for immunoglobulin (Ig) class switching. The membrane-anchored CD40 Ligand is expressed almost exclusively on activated CD4+ T lymphocytes. Failure to express CD40L leads to “immunodeficiency with hyper-IgM”, a disease characterized by failure to produce IgG, IgA and IgE. The human CD40L gene codes for a 261 amino acid type II transmembrane protein, which contains a 22 amino acid cytoplasmic domain, a 24 amino acid transmembrane domain, and a 215 amino acid extracellular domain. The soluble form of CD40L is an 18 kDa protein comprising the entire TNF homologous region of CD40L and is generated <i>in vivo</i> by an intracellular proteolytic processing of the full length CD40L.		
Research Areas:	Allergy, Angiogenesis/Cardiovascular, Apoptosis, Immune System, Inflammation, Transplantation		
AA Sequence:			
Human sCD40 Ligand:	MQKGDQNPQI AAHVISEASS KTTSVLQWAE KGYTMSNNL VTLENGKQLT VKRQGLYYIY AQVTFCSNRE ASSQAPFIAS LWLKSPGRFE RILLRAANTH SSAKPCGQQS IHLGGVFELQ PGASVFNVT DPSQVSHGTG FTSFGLLKL		
Murine sCD40 Ligand:	MQRGDEDPQI AAHVSEANS NAASVLQWAK KGYTMSKNL VMLENGKQLT VKREGLYYVY TQVTFCSNRE PSSQRPFIYG LWLKPSGSE RILLKAANTH SSSQLCEQQS VHLGGVFELQ AGASVFNVT EASQVIHRVG FSSFGLLKL		
Estimated pI:	Human sCD40 Ligand: 9.56 Murine sCD40 Ligand: 9.17	Accession #: Human sCD40 Ligand: P29965 Murine sCD40 Ligand: P27548	
NCBI Gene ID:	Human sCD40 Ligand: 959 Murine sCD40 Ligand: 21947		

Product Name	Catalog Number	MW	AA
Recombinant Human sCD40 Ligand	310-02	16.3 kDa	149
Animal-Free Recombinant Human sCD40 Ligand	AF-310-02	16.3 kDa	149
Recombinant Murine sCD40 Ligand	315-15	16.4 kDa	149

sCD100

Synonyms:

Description:

Research Areas:

AA Sequence:

Estimated pI:

NCBI Gene ID:

soluble CD100, Semaphorin-4D, BB18, A8, GR3

The Semphorins are a large family of phylogenetically conserved proteins that play a pivotal role in maintaining homeostasis in the immune system. Twenty members of this family have been identified and categorized into eight subclasses based on sequence similarity and distinctive structural features. CD100, also known as Sema4D, is a 150 kDa transmembrane class IV semaphorin. Studies have shown that CD100 can induce monocyte migration, T-cell activation, and B-cell survival, as well as T/B cell and T/DC “cooperation”. The CD100 precursor contains 862 amino acids, including a 21 a.a. signal sequence, a 713 a.a. extracellular domain, a 21 a.a. transmembrane sequence, and a 107 a.a. cytoplasmic region. The extracellular sequence contains several structural features, including a 479 a.a. “sema” domain, a 79 a.a. Ig-like sequence, and a 52 a.a. “Plexin-type repeat”.

Chemotaxis, Immune System

FAPIPRITWE HREVHLVQFH EPDIYNYSAL LLSEDKDTLY IGAREAVFAV NALNISEKQH EVYWKVSEDK
KAKCAEKGKS KQTECLNYIR VLQPLSATSL YVCGTNAFQP ACDHLNLTsf KFLGKNEDGK GRCPFDPaHS
YTSVMVDGEL YSGTSYNFLG SEPIISRNSS HSPLRTEYAI PwLNepsfVf ADVIRKSPDS PDGEDDRVYF
FFTEVSVEYE FVFRVLIPRI ARVCKGDQGG LRTLQKKWTS FLKARLICSR PDSGLVFNVl RDVFVLRSPG
LKVPVFYALF TPQLNNVGLS AVCAYNLSTA EEVFSHGKYM QSTTVEQSHT KWVRYNGPVP KPRPGACIDS
EARAANYTSS LNLDPKTLQF VKDHPLMDDS VTPIDNRPRl IKKDVNYTQI VVDRTQALDG TVYDVMFVST
DRGALHKaIS LEHAVHIIEE TQLFQDFEPV QTLllSSKKG NRfVYAGSns GVVQAPLaFC GKHGTCEDCV
LARDPYCAWS PPTATCVALH QTESPSRGLI QEMSGDASVC PDKSKGSYRQ HFFKHGGTAE LKCSQKSNLa
RVFWKFQNGV LKAESPKYGL MGRKNLLIFN LSEGDSGVYQ CLSEERVKNK TVfQVVAKHV LEVKVVPKPV
VAPTLSVVQT EGSRIATKVL VASTQGSSPP TPAVQATSSG AITLPPKPaP TGTSCePKIV INTVPQLHSE
KTMylKSSDN R

8.92

Accession #: Q92854

10507

Product Name	Catalog Number	MW	AA
Recombinant Human sCD100	310-29	78.9 kDa	711

CDNF

Synonyms:

Cerebral Dopamine Neurotrophic Factor, ARMETL1

Description:

CDNF is a secreted neurotrophic factor that is expressed in brain, neuronal and certain non-neuronal tissues. It has been shown to promote survival, growth and function of dopamine-specific neurons. CDNF and its structural homolog, MANF, each contain an N-terminal saposin-like lipid binding domain, and a carboxyl-terminal domain, which is not homologous to previously characterized protein structures. CDNF and MANF can prevent 6-OHDA-induced degeneration of dopaminergic neurons by triggering survival pathways in a rat experimental model of Parkinson’s disease.

Research Areas:

Immune System, Neurobiology, Stem Cells & Differentiation

AA Sequence:

MQEAGGRPGA DCEVCKEFLN RFYKSLIDRG VNFSLDTIEK ELISFCLDTK GKENRLCYYL GATKDAATKI
LSEVTRPMSV HMPAMKICEK LKKLDSQICE LKYEKTDLA SVDLRKMRVA ELKQILHSWG EECRACAECT
DYVNLIQELA PKYAATHPKT EL

Estimated pI:

8.14

Accession #:

Q49AH0

NCBI Gene ID:

441549

Product Name	Catalog Number	MW	AA
Recombinant Human CDNF	450-05	18.5 kDa	162

Chemerin

Synonyms:

Tazarotene-Induced Gene 2 (TIG2), RARRES2

Description:

Chemerin is a secreted chemoattractant protein that can signal through the chemokine-like receptor-1 (CMKLR1). It is expressed in various tissues, including white adipose tissue, and circulates in blood as an inactive 143 amino acid precursor protein. Biologically active Chemerin is generated by proteolytic removal of C-terminal residues by several circulating proteases. Chemerin acts as a chemoattractant for cells expressing the CMKLR1 receptor, which includes certain dendritic cells, macrophages, and adipocytes.

Research Areas:

Chemotaxis, Diabetes/Weight Regulation, Immune System, Lipid Metabolism

AA Sequence:

ELTEAQRRLGL QVALEEFHKKH PPVQWAFQET SVESAVDTPF PAGIFVRLEF KLQQTSCRKR DWKKPECKVR
PNGRKRKCLA CIKLGSEDKV LGRLVHCPIE TQVLREAEH QETQCLRVQR AGEDPHSFYF PGQFA

Estimated pI:

9.18

Accession #:

Q99969

NCBI Gene ID:

5919

Product Name	Catalog Number	MW	AA
Recombinant Human Chemerin	300-66	15.6 kDa	135

CNTF

Synonyms:	Ciliary Neurotrophic Factor
Description:	CNTF is a potent neural factor that was originally characterized as a vital factor for the survival of chick ciliary neurons <i>in vitro</i> . CNTF is also important for the survival of other neural cell types, including primary sensory neurons, motor neurons, basal forebrain neurons and type 2 astrocytes. CNTF is highly conserved across species and exhibits cross-species bioactivity.
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Bone/Skeletal/Cartilage, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Wound Healing
AA Sequence:	
Human CNTF:	AFTEHSPLTP HRRDLCSRSI WLARKIRSDL TALTQSYVKH QGLNKNINLD SADGMPVAST DQWSQLTQAO RLQQNLQAYR TFHVLLARLL QDQQVHFTPT QGDFHQAIHT LLLQVAAFAY QIQQLMILLQ YKIPRNQADG MPINVGDGGL FQKKLWGLKV LQQLSQWTVR SIHDLRFISS HQTGIPARGS HYIANNKKM
Rat CNTF:	AFAEQTPLTL HRRDLCSRSI WLARKIRSDL TALMESYVKH QGLNKNINLD SVDGVPVAST DRWSEMTEAE RLQENLQAYR TFQGMLTKLL EDQRVHFTPT EGDHFQAIHT LMLQVSAFAY QLEELMVILLE QKIPENEADG MPATVGDGGL FEKKLWGLKV LQELSQWTVR SIHDLRVISS HQMGISALES HYGAKDKQM
Estimated pI:	Human CNTF: 10.30 Rat CNTF: 5.71
	Accession #: Human CNTF: P26441 Rat CNTF: P20294
NCBI Gene ID:	Human CNTF: 1270 Rat CNTF: 25707

Product Name	Catalog Number	MW	AA
Recombinant Human CNTF	450-13	22.8 kDa	199
Animal-Free Recombinant Human CNTF	AF-450-13	22.8 kDa	199
Recombinant Rat CNTF	450-50	22.7 kDa	199
Animal-Free Recombinant Rat CNTF	AF-450-50	22.7 kDa	199

CTACK (CCL27)

Synonyms:	Cutaneous T-cell Attracting Chemokine, ALP, Skinkine, Eskine		
Description:	CTACK is a keratinocyte-derived CC chemokine which signals through the CCR10 receptor. Both CTACK and CCR10 are expressed in normal and irritated epithelial cells. CTACK selectively attracts CLA+ T-cells and directs them into the skin. CTACK contains the four highly conserved cysteine residues present in most CC chemokines.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:			
Human CTACK (CCL27):	FLLPPSTACC TQLYRKPLSD KLLRKVIQVE LQEADGDCHL QAFVLHLAQR SICIHPQNPS LSQWFEHQER KLHGTLPKLN FGMLRKMG		
Murine CTACK (CCL27):	LPLPSSTSCC TQLYRQPLPS RLLRRIVHME LQEADGDCHL QAVVLHLARR SVCVHPQNRS LARWLERQ GK RLQGTVP SLN LVLQKKMYSN PQQQN		
Estimated pI:	Human CTACK (CCL27): 9.72 Murine CTACK (CCL27): 11.89	Accession #:	Human CTACK (CCL27): Q9Y4X3 Murine CTACK (CCL27): Q9Z1X0
NCBI Gene ID:	Human CTACK (CCL27): 10850 Murine CTACK (CCL27): 20301		

Product Name	Catalog Number	MW	AA
Recombinant Human CTACK (CCL27)	300-54	10.2 kDa	88
Recombinant Murine CTACK (CCL27)	250-26	10.9 kDa	95

CTGF

Synonyms:

Connective Tissue Growth Factor, CCN2, Hypertrophic chondrocyte-specific protein 24 (HCS24)

Description:

CTGF is a member of the CCN family of secreted cysteine-rich regulatory proteins, and is the major mitogenic and chemoattractant protein produced by umbilical vein and vascular endothelial cells. CTGF stimulates the proliferation and differentiation of chondrocytes, induces angiogenesis, promotes cell adhesion of fibroblasts, endothelial and epithelial cells, and binds to IGF, TGF-β1 and BMP-4. Cell migration and adhesion are signaled through binding to specific cell surface integrins and to heparin sulfate proteoglycans. CTGF (98 a.a.), a lower molecular weight isoform containing the C-terminal portion of the full length CTGF protein, exerts full heparin binding, cell adhesion, and mitogenic CTGF activity. Mature Human CTGF is a 38.0 kDa secreted protein containing 323 amino acid residues. CTGF is comprised of four distinct structural domains (modules), which are identified as IGF-Binding Protein (IGF-BP), von Willebrand Factor C (VWFC), Thrombospondin type I (TSP type I), and C-terminal cysteine knot-like (CTCK) domains. Full length CTGF can be proteolytically cleaved in certain tissues to yield N-terminal truncated isoforms, which, depending on the isoform, contain only the TSP type-I and CTCK domains or contain only the CTCK domain.

Research Areas:

Angiogenesis/Cardiovascular, Apoptosis, Cancer, Immune System, Stem Cells & Differentiation, Wound Healing

AA Sequence:

GKKCIRTPKI SKPIKFELSG CTSMTKYRAK FCGVCTDGRC CTPHRTTTLP VEFKCPDGEV MKKNMMFIKT
CACHYNCPGD NDIFESLYYR KMYGDMA

Estimated pI:

9.73

Accession #:

P29279

NCBI Gene ID:

1490

Product Name	Catalog Number	MW	AA
Recombinant Human CTGF	120-19	11.0 kDa	97

CTGFL/WISP-2

Synonyms:	Connective Tissue Growth Factor-Like protein, CCN5, CT-58		
Description:	CTGFL/WISP-2 is a 28.6 kDa protein that belongs to the CCN family of cysteine-rich regulatory proteins. Members of this family stimulate mitosis, adhesion, apoptosis, extracellular matrix production, growth arrest, and migration of multiple cell types. The protein is expressed in primary osteoblasts, fibroblasts, the ovaries, testes, and heart. In addition to promoting adhesion of osteoblasts, CTGFL/WISP-2 inhibits osteocalcin production, as well as binding of fibrinogen to integrin receptors. Mature human CTGFL/WISP-2 is a 24.8 kDa polypeptide protein containing 227 amino acids. It is composed of 3 distinct domains; the IGF-Binding Protein domain (IGF-BP), the Thrombospondin type I repeat (TSP type I), and von Willebrand Factor C motif (VWFC).		
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Immune System		
AA Sequence:	MQLCPTPCTC PWPPPRCPLG VPLVLDGCGC CRVCARRLGE PCDQLHVCDASQGLVCQPGA GPGGRGALCL LAEDDSSCEV NGRLYREGET FQPHCSIRCR CEDGGFTCVPLCSEDVRLPS WDCPHPRRVE VLGKCCPEWV CGQGGGLGTQ PLPAQGPFQFS GLVSSLPPGV PCPEWSTAWG PCSTTCGLGM ATRVSNQNRFCRLETQRRLC LSRPCPPSRG RSPQNSAF		
Estimated pI:	9.91	Accession #:	O76076
NCBI Gene ID:	8839		

Product Name	Catalog Number	MW	AA
Recombinant Human CTGFL/WISP-2	120-16	24.3 kDa	228

CTLA-4

Synonyms: Cytotoxic T-lymphocyte-associated antigen 4, CD152

Description: CTLA-4 and CD28 are receptors of the immunoglobulin superfamily that are expressed, along with the transmembrane glycoproteins B7-1 and B7-2, by antigen-presenting cells, and with these ligands constitute crucial co-stimulatory pathways for T and B cell regulatory responses. It is through engagement with CD28 and CTLA-4 that the B7 family ligands B7-1 and B7-2 play principal roles in immunity by activating immune response and maintaining immune tolerance. Co-stimulatory signals generated by B7-1 and B7-2 interactions with CD28 serve to stimulate T cell activation and prevent anergy through the amplification of T cell receptor (TCR) signaling. In contrast, interactions of the ligands with CTLA-4 serves to maintain T cell homeostasis and self-tolerance through the disruption of stimulatory signaling from B7 isoform-bound CD28 complexes, and by inducing powerful inhibitory signals in T cells. CTLA-4, like B7-1, is only poorly expressed on resting dendritic cells; therefore, up-regulation of their interaction and resultant amplification and regulation of T cell activity at peripheral inflammation sites is considerably delayed upon immune activation. Conversely, B7-2 and CD28 are constitutively expressed by resting hematopoietic and T cells, respectively, and as a result are able to rapidly induce up-regulation upon immune activation, making them critical to the early co-stimulatory signaling of immune response. Unlike B7-1 and B7-2, the ligands PD-L1 (or B7-H1) and B7-H2, which also belong to the B7 family, have not been shown to influence immunity through interaction with CTLA-4. B7-H2 has been shown to have restricted interaction with CD28. The difference in expression of B7-1, B7-2 and B7-H2 may enable temporally and spatially-specific regulation of T cell response through non-competitive CD28 interaction.

Research Areas: Allergy, Cancer, Immune System, Inflammation, Wound Healing

AA Sequence (monomer): MHVAQPAVL ASSRGIASFV CEYASPGKAT EVRVTVLRQA DSQVTEVCAA TYMMGNELTF LDDSICTGTS
SGNQVNLTIQ GLRAMDTGLY ICKVELMYPP PYYLGIGNGT QIYVIDPEPC PDSDGGPKSC DKTHTCPPCP
APELLGGPSV FLFPPKPKDT LMISRTPEVT CVVVDVSHED PEVKFNWYVD GVEVHNAKTK PREEQYNSTY
RVVSVLTVLH QDWLNGKEYK CKVSNKALPA PIEKTISKAK GQPREPQVYT LPPSRDELTK NQVSLTCLVK
GFYPSDIAVE WESNGQPENN YKTTTPPVLDS DGSFFLYSKL TVDKSRWQQG NVFSCSVME ALHNHYTQKS
LSLSPGK

Estimated pI: 6.03 **Accession #:** P16410

NCBI Gene ID: 1493

Product Name	Catalog Number	MW	AA
Recombinant Human CTLA-4 Fc	310-05	78.7 kDa	714

CXCL16

Synonyms:	SRPSOX		
Description:	CXCL16 is a member of the CXC chemokine family and signals through the CXCR6 receptor. CXCL16 may play a role in attracting lymphocyte subsets during inflammation and may facilitate certain immune responses. The chemokine domain of CXCL16 contains six cysteine residues, including the four highly conserved cysteine residues characteristic of CXC chemokines. The CXCL16 gene codes for a 273 amino acid polypeptide, which includes a 29 amino acid cytoplasmic domain and transmembrane sequence containing approximately 20 amino acids. The extracellular portion of CXCL16 contains a chemokines domain and an extended C-terminal “mucin-like stalk” sequence. The extracellular domain contains 89 amino acid residues (86 a.a. residues for the murine homolog).		
Research Areas:	Chemotaxis, Immune System, Inflammation, Wound Healing		
AA Sequence:			
Human CXCL16:	NEGSVTGSCY CGKRISDSP PSVQFMNRLR KHLRAYHRCL YYTRFQLLSW SVCGGNKDPW VQELMSCLDL KECGHAYSGI VAHQKHLFP		
Murine CXCL16:	NQGSVAGSCS CDRTISSGTQ IPQGTLDHIR KYLKAFHRCP FFIREQLQSK SVCGGSQDQW VRELVDCKER KECGTGHGKS FHHQKHLP		
Estimated pI:	Human CXCL16: 9.77 Murine CXCL16: 9.96	Accession #: Human CXCL16: Q9H2A7 Murine CXCL16: Q8BSU2	
NCBI Gene ID:	Human CXCL16: 58191 Murine CXCL16: 66102		

Product Name	Catalog Number	MW	AA
Recombinant Human CXCL16	300-55	10.1 kDa	89
Recombinant Murine CXCL16	250-28	9.9 kDa	88

CYR61

Synonyms:

CCN1, GIGI protein, Cysteine-rich 61

Description:

CYR61 is a member of the CCN family of secreted cysteine-rich regulatory proteins. CYR61 induces angiogenesis by stimulating the proliferation, migration, and adhesion of endothelial cells. Cell migration and adhesion are mediated through binding to specific cell surface integrins and to heparin sulfate proteoglycans. Increased expression of CYR61 is associated with several types of cancer, and correlates with the progression and estrogen independence of human breast cancers.

Research Areas:

Angiogenesis/Cardiovascular, Cancer, Immune System, Stem Cells & Differentiation

AA Sequence:

TCPAACHCPL EAPKCAPGVG LVRDGCCK VCAKQLNEDC SKTQPCDHTK GLECNFGASS TALKGICRAQ
SEGRPCEYNS RIYQNGESFQ PNCKHQCTCI DGAVGCIPLC PQELSLPNLG CPNPRLVKVT GQCCEEWVCD
EDSIKDPMED QDGLLGKELG FDASEVELTR NNELIAVGKG SSLKRLPVFG MEPRILYNPL QGQKCIVQTT
SWSQCSKTCG TGISTRVTND NPECRLVKET RICEVRPCGQ PVYSSLKKGK KCSKTKKSPE PVRFTYAGCL
SVKKYRPKYC GSCVDGRCCT PQLTRTVKMR FRCEDGETFS KNVMMIQSCK CNYNCPHANE AAFPFYRLFN
DIHKFRD

Estimated pI:

9.42

Accession #:

O00622

NCBI Gene ID:

3491

Product Name	Catalog Number	MW	AA
Recombinant Human CYR61	120-25	39.4 kDa	357

DKK-1

Synonyms:

Dickkopf-related protein 1, Dickkopf-1, SK

Description:

DKK-1 is a member of the DKK protein family which also includes DKK-2, DKK-3 and DKK-4. DKK-1 was originally identified as a Xenopus head-forming molecule that behaves as an antagonist for Wnt signaling. Subsequent studies have shown that DKK-1 and DKK-4 play an important regulatory role in the Wnt/ β -catenin signaling pathway by forming inhibitory complexes with LDL receptor-related proteins 5 and 6 (LRP5 and LRP6), which are essential components of the Wnt/ β -catenin signaling system. LRP5 and LRP6 are single-pass transmembrane proteins that appear to act as co-receptors for Wnt ligands involved in the Wnt/ β -catenin signaling cascade. It has been suggested that by inhibiting Wnt/ β -catenin signaling, which is essential for posterior patterning in vertebrates, DKK-1 permits anterior development. This notion is supported by the finding that mice deficient of DKK-1 expression lack head formation and die during embryogenesis.

Research Areas:

Bone/Skeletal/Cartilage, Cancer, Neurobiology, Stem Cells & Differentiation

AA Sequence:

TLNSVLNSNA IKNLPPPLGG AAGHPGSAVS AAPGILYPGG NKYQTIDNYQ PYPCAEDEEC GTDEYCASPT
RGGDAGVQIC LACRKRRKRC MRHAMCCPGN YCKNGICVSS DQNHFRGEIE ETITESFGND HSTLDGYSRR
TTLSSKMYHT KGQEGSVCLR SSDCASGLCC ARHFWSKICK PVLKEGQVCT KHRRKGSHGL EIFQRCYCGE
GLSCRIQKDH HQASNSSRLH TCQRH

Estimated pI:

9.67

Accession #:

O94907

NCBI Gene ID:

22943

Product Name	Catalog Number	MW	AA
Recombinant Human DKK-1	120-30	25.8 kDa	235

DKK-2

Synonyms:	Dickkopf-related protein 2, Dickkopf-2		
Description:	The <i>dickkopf</i> (DKK)-related protein family is comprised of four central members, DKK-1 - 4, along with the distantly-related DKK family member DKK-11 (Soggy), which is thought to be a descendent of an ancestral DKK-3 precursor due to its unique sequence homology to DKK-3 and no other DKK family member. DKK family members, with the exception of the divergent Soggy, share two conserved cysteine-rich domains and show very little sequence similarity outside of these domains. Playing an important regulatory role in vertebrate development through localized inhibition of Wnt-regulated processes, including anterior-posterior axial patterning, limb development, somitogenesis, and eye formation, DKKs have also been implicated post-developmentally in bone formation, bone disease, cancer, and neurodegenerative diseases. DKK proteins typically play an important regulatory role in the Wnt/β-catenin signaling pathway by forming inhibitory complexes with LDL receptor-related proteins 5 and 6 (LRP5 and LRP6), which are essential components of the Wnt/β-catenin signaling system. LRP5 and LRP6 are single-pass transmembrane proteins that appear to act as co-receptors for Wnt ligands involved in the Wnt/β-catenin signaling cascade. DKK-2 has been shown to both inhibit and enhance canonical Wnt signaling; enhancing Wnt signaling through direct high-affinity binding of DKK-2 to LRP6 during LRP6 overexpression, while inhibiting Wnt signaling and promoting LRP6 internalization through the formation of a ternary complex between DKK-2, LRP6, and Kremen-2.		
Research Areas:	Bone/Skeletal,/Cartilage, Cancer, Neurobiology, Stem Cells & Differentiation		
AA Sequence:	SQIGSSRAKL NSIKSSLGGE TPGQAANRSA GMYQGLAFGG SKKGKNLGQA YPCSSDKECE VGRYCHSPHQ GSSACMVCRR KKKRCHRDGM CCPSTRCNGG ICIPVTESIL TPHIPALDGT RHRDRNHGHY SNHDLGWQNL GRPHTKMSHI KGHEGDPCLR SSDCIEGFCC ARHFWTKICK PVLHQGEVCT KQRKKGSHGL EIFQRCDCAK GLSCKVWKDA TYSSKARLHV CQKI		
Estimated pI:	10.38	Accession #:	Q9UBU2
NCBI Gene ID:	27123		

Product Name	Catalog Number	MW	AA
Recombinant Human DKK-2	120-45	25.8 kDa	234

DKK-3

Synonyms: Dickkopf-related protein 3, Dickkopf-3, REIC

Description: The *dickkopf* (DKK)-related protein family is comprised of four central members, DKK-1 - 4, along with the distantly-related DKK family member DKK-L1 (Soggy), which is thought to be a descendent of an ancestral DKK-3 precursor due to its unique sequence homology to DKK-3 and no other DKK family member. DKK family members, with the exception of the divergent Soggy, share two conserved cysteine-rich domains and show very little sequence similarity outside of these domains. Playing an important regulatory role in vertebrate development through localized inhibition of Wnt-regulated processes, including anterior-posterior axial patterning, limb development, somitogenesis, and eye formation, DKKs have also been implicated post-developmentally in bone formation, bone disease, cancer, and neurodegenerative diseases. DKK proteins typically play an important regulatory role in the Wnt/ β -catenin signaling pathway by forming inhibitory complexes with LDL receptor-related proteins 5 and 6 (LRP5 and LRP6), which are essential components of the Wnt/ β -catenin signaling system. LRP5 and LRP6 are single-pass transmembrane proteins that appear to act as co-receptors for Wnt ligands involved in the Wnt/ β -catenin signaling cascade. DKK-3 has been shown to potentiate, rather than inhibit, Wnt signaling through interactions with the high-affinity, transmembrane co-receptors Kremen-1 (Krm1) and Kremen-2 (Krm2).

Research Areas: Bone/Skeletal/Cartilage, Cancer, Neurobiology, Stem Cells & Differentiation

AA Sequence: APAPTATSAP VKPGPALSY P QEEATLNEMF REVEELMEDT QHKLRSAVEE MEAEAAAAKA SSEVNLANLP
PSYHNETNTD TKVGNNTIHV HREIHKITNN QTGQMVFSET VITSVGDEEG RRSHECIIDE DCGPSMYCQF
ASFQYTCQPC RGQRMCLTRD SECCGDQLCV WGHCTKMATR GSNGTICDNQ RDCQPGLCCA FQRGLLFPVC
TPLPVEGELC HDPASRLLDL ITWELEPDGA LDRPCASGL LCQPHSHSLV YVCKPTFVGS RDQDGEILLP
REVPDEYEVG SFMEEVRQEL EDLERSLTEE MALREPAAAA AALLGGEEI

Estimated pI: 4.36 **Accession #:** Q9UBP4

NCBI Gene ID: 27122

Product Name	Catalog Number	MW	AA
Recombinant Human DKK-3	120-46	36.3 kDa	329

sDLL-1

Synonyms:

soluble DLL-1, Delta-like protein 1, Delta-1

Description:

Human soluble DLL-1 comprises the extracellular signaling domain of DLL-1, a member of the Delta/Serrate/Lag-2 (DSL) family of single-pass type I trans-membrane proteins that serve as ligands for Notch receptors. It is expressed primarily in the heart, pancreas and epidermis. DLL-1 functions to specifically activate the Notch-1 and Notch-2 receptors. Proteolytic cleavage of DLL-1 produces a secreted extracellular domain, sDLL-1, that interacts with Notch receptors expressed on adjacent cells. Notch signaling plays an essential role in controlling cell fate decisions during prenatal development and postnatal stem cell renewal, and differentiation in many tissues. Human sDLL-1 blocks monocyte differentiation into macrophages, but permits differentiation into dendritic cells. In hematopoietic progenitor cells, hsDLL-1, suppresses differentiation into B-cells, while promoting differentiation into T-cells and NK cell precursors. In cell culture, human sDLL-1 has been shown to promote expansion of hematopoietic progenitor cells and suppress apoptosis by inhibiting differentiation. Overexpression of Notch receptors appears to inhibit differentiation in several mammalian cell lines, and increasing evidence suggests that Notch signaling is frequently downregulated in human malignancies. The human DLL-1 gene consists of a 528 amino acid extracellular domain with one DSL domain, eight EGF-like repeats, a 23 amino acid transmembrane domain, and a 155 amino acid cytoplasmic domain.

Research Areas:

Angiogenesis/Cardiovascular, Apoptosis, Cancer, Neurobiology, Stem Cells & Differentiation

AA Sequence:

SGVFELKLQE FVNKKGLLGN RNCCRGGAGP PPCACRTFFR VCLKHYQASV SPEPPCTYGS AVTPVLGVDS
FSLPDGGGAD SAFSNPIRFP FGFTWPGTFS LIIEALHTDS PDDLATENPE RLISRLATQR HLTVGEEWSQ
DLHSSGRTDL KYSYRFVCDE HYYGEGCSVF CRPRDDAFGH FTCGERGEKV CNPGWKGPYC TEPICLPGCD
EQHGFCDKPG ECKCRVGWQG RYCDECIRYP GCLHGTCQQP WQCNCQEGWG GLFCNQDLNY CTHHKPCKNG
ATCTNTGQGS YTCSCRPGYT GATCELGIDE CDPSPCKNGG SCTDLENSYS CTCPPGFYGK ICELSAMTCA
DGPCFNGGRC SDSPDGGYSC RCPVGYSGFN CEKKIDYCSS SPCSNGAKCV DLGDAYLCRC QAGFSGRHCD
DNVDDCASSP CANGGTCRDG VNDFSCTCPP GTYGRNCSAP VSRCEHAPCH NGATCHERGH RYVCECARGY
GGPNCQFLLP ELPPGPAVVD LTEKLEGQGG PF

Estimated pI:

5.37

Accession #:

O00548

NCBI Gene ID:

28514

Product Name	Catalog Number	MW	AA
Recombinant Human sDLL-1	140-08	56.3 kDa	522

sDLL-4

Synonyms:

soluble DLL-4, Delta-like protein 4, Drosophila Delta homolog 4

Description:

Human sDLL-4 comprises the extracellular signaling domain of DLL, a member of a structurally-related family of single-pass type I trans-membrane proteins that serve as ligands for Notch receptors. DLL-4 functions to specifically activate the Notch-1 and Notch-4 receptors. The Notch signaling pathway regulates endothelial cell differentiation, proliferation and apoptosis, and is essential for the development, maintenance and remodeling of the vascular system. Targeted deletion of the DLL-4 gene in mice resulted in severe vascular defects and death before birth. Up-regulation of DLL-4 expression has been implicated in the vascular development of certain tumors. The human DLL-4 gene consists of a 503 amino acid extracellular domain with one DSL domain, eight EGF-like repeats, a 21 a.a. transmembrane domain, and a 135 a.a. cytoplasmic domain.

Research Areas:

Angiogenesis/Cardiovascular, Apoptosis, Cancer, Immune System, Neurobiology, Stem Cells & Differentiation

AA Sequence:

SGVFQLQLQE FINERGVLAS GRPCEPGCRT FFRVCLKHFQ AVVSPGPCTF GTVSTPVLGT NSFAVRDDSS
GGGRNPLQLP FNFTWPGTFS LIIEAWHAPG DDLRPEALPP DALISKIAIQ GSLAVGQNWL LDEQTSTLTR
LRYSYRVICS DNYYGDNCSR LCKKRNDHFG HYVCQPDGNL SCLPGWTGEY CQQPICLSGC HEQNGYCSKP
AECLCRPGWQ GRLCNECIPH NGCRHGTCST PWQCTCDEGW GGLFCDQDLN YCTHHSPCKN GATCSNSGQR
SYTCTCRPGY TGVDCELELS ECDSNPCRNG GSCKDQEDGY HCLCPPGYYG LHCEHSTLSC ADSPCFNNGS
CRERNQGANY ACECPPNFTG SNCEKKVDRC TSNPCANGGQ CLNRGFSRMC RCRPGFTGTY CELHVSDCAR
NPCAHGGTCH DLENGLMCTC PAGFSGRRCE VRTSIDACAS SPCFNRATCY TDLSTDTFVC NCPYGFVGSR
CEFPVGLP

Estimated pI:

6.11

Accession #:

Q9NR61

NCBI Gene ID:

54567

Product Name	Catalog Number	MW	AA
Recombinant Human sDLL-4	140-07	54.3 kDa	498

EGF

Synonyms:	Epidermal Growth Factor, Urogastrone, URG		
Description:	EGF is a potent growth factor that stimulates the proliferation of various epidermal and epithelial cells. Additionally, EGF has been shown to inhibit gastric secretion, and to be involved in wound healing. EGF signals through a receptor known as c-erbB, which is a class I tyrosine kinase receptor. This receptor also binds with TGF- α and VGF (vaccinia virus growth factor).		
Research Areas:	Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Wound Healing		
AA Sequence:			
Human EGF:	NSDSECLSH DGYCLHDGVC MYIEALDKYA CNCVVGYIGE RCQYRDLKWW ELR		
Murine EGF:	NSYPGCPSSY DGYCLNGGVC MHIESLDSYT CNCVIGYSGD RCQTRDLRWW ELR		
Rat EGF:	MNSNTGCPPS YDGYCLNGGV CMYVESVDYR VCNCVIGYIG ERCQHRDLRW WKLR		
Estimated pI:	Human EGF: 4.91 Murine EGF: 4.70 Rat EGF: 8.59	Accession #:	Human EGF: P01133 Murine EGF: P01132 Rat EGF: P07522
NCBI Gene ID:	Human EGF: 1950 Murine EGF: 13645 Rat EGF: 25313		

Product Name	Catalog Number	MW	AA
Animal-Free Recombinant Human EGF	AF-100-15	6.2 kDa	53
PeproGMP® Recombinant Human EGF	GMP100-15	6.2 kDa	53
Recombinant Murine EGF	315-09	6.0 kDa	53
Animal-Free Recombinant Murine EGF	AF-315-09	6.0 kDa	53
Recombinant Rat EGF	400-25	6.2 kDa	54
Animal-Free Recombinant Rat EGF	AF-400-25	6.2 kDa	54

EGF Receptor (EGFR)

Synonyms:	ErbB1		
Description:	EGF Receptor (EGFR, ErbB1) is a transmembrane protein that exerts tyrosine kinase activity upon ligand-induced activation. EGFR can be activated by binding EGF, or at least six other structurally related protein ligands, including TGF α , HB-EGF, Betacellulin (BTC), Amphiregulin, Epiregulin, and Epigen. Upon activation, EGFR initiates a signaling cascade, which includes dimerization and internalization, tyrosine phosphorylation, DNA synthesis of target genes and, ultimately, cell proliferation. EGFR signaling plays a role in the growth and differentiation of normal cells, but elevated EGFR activity is correlated with the development and pathogenesis of certain cancers.		
Research Areas:	Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Wound Healing		
AA Sequence:	LEEKKVCQGT SNKLTQLGTF EDHFLSLQRM FNNCEVVLGN LEITYVQRNY DLSFLKTIQE VAGYVLIALN TVERIPLLENL QIIRGNMYYE NSYALAVLSN YDANKTGLKE LPMRNLQEIL HGAVRFSNNP ALCNVESIQW RDIVSSDFLS NMSMDFQNLH GSCQKCDPSC PNGSCWGAGE ENCQKLTKII CAQQCSGRCR GKSPSDCCHN QCAAGCTGPR ESDCLVCRKF RDEATCKDTC PPLMLYNPTT YQMDVNPEGK YSFGATCVKK CPRNYVVTDH GSCVRACGAD SYEMEEDGVR KCKKCEGPCR KVCNGIGIGE FKDSL SINAT NIKHFKNCTS ISGDLHILPV AFRGDSFTHT PPLDPQELDI LKTVKEITGF LLIQAWPENR TDLHAFENLE IIRGR TKQHG QFSLAVVSLN ITSLGLRSLK EISDGDVIIS GNKNLCYANT INWKKLFGTS GQKTKIISNR GEN SCKATGQ VCHALCSPEG CWGPEPRDCV SCRNVSRGRE CVDKCNLLEG EPREFVENSE CIQCHPECLP QAMNITCTGR GPDNCIQCAH YIDGPHCVKT CPAGVMGENN TLVWKYADAG HVCHLCHPNC TYGCTGPGLE GCPTNGPKIP S		
Estimated pI:	6.54	Accession #:	P00533
NCBI Gene ID:	1956		

Product Name	Catalog Number	MW	AA
Recombinant Human EGF Receptor (EGFR)	100-15R	68.6 kDa	621

EGF-L7

Synonyms:

Epidermal Growth Factor-Like protein 7, MEGF7, Multiple EGF-like domains protein 7, NOTCH4-like protein, VE-statin, Zneu1

Description:

EGF-L7 (Epidermal growth factor-like protein 7, Multiple EGF-like domains protein 7, VE-statin) is a multi-domain protein containing two EGF-like domains and one EMI domain. It is expressed almost exclusively in endothelial cells and functions to promote normal development of the vascular system, particularly tubulogenesis. EGF-L7 is capable of antagonistic binding to Notch receptors, resulting in the inhibition of Notch signaling in HUVEC and neural stem cells. In research models inducing hypoxia and subsequent reoxygenation (H/R), EGF-L7 can inhibit ICAM-1 expression and enhance the inhibition of NF-κB activation. Additionally, EGF-L7 can chemoattract endothelial cells and bind to the extracellular matrix. The overexpression of EGF-L7 is observed in various cancers, and is generally correlated with increased metastasis and a poor prognosis.

Research Areas:

Angiogenesis/Cardiovascular, Cancer, Chemotaxis, Immune System, Inflammation, Stem Cells & Differentiation

AA Sequence:

MYRPGRRVCA VRAHGDPVSE SFVQRVYQPF LTTCDGHRAC STYRTIYRTA YRRSPGLAPA RPRYACCPGW
KRTSGLPGAC GAAICQPPCR NGGSCVQPGR CRCPAGWRGD TCQSDVDECS ARRGGCPQRC VNTAGSYWCQ
CWEGHSLSAD GTLCVPKGGP PRVAPNPTGV DSAMKEEVQR LQSRVDLLEE KLQLVLAPLH SLASQALEHG
LPDPGSLLVH SFQQLGRIDS LSEQISFLEE QLGSCSCKKD S

Estimated pI:

10.02

Accession #:

Q9UHF1

NCBI Gene ID:

51162

Product Name	Catalog Number	MW	AA
Recombinant Human EGF-L7	100-61	27.4 kDa	251

EG-VEGF

Synonyms:	Endocrine Gland-derived Vascular Endothelial Growth Factor, Prokineticin 1, PROK1		
Description:	EG-VEGF is a secreted angiogenetic mitogen growth factor expressed in the steroidogenic glands, ovary, testis, adrenal gland, and placenta. EG-VEGF induces proliferation, migration, and fenestration (formation of membrane discontinuities) in capillary endothelial cells derived from endocrine glands. The human EG-VEGF gene codes for a 105 amino acid polypeptide containing an N-terminal signal sequence of 19 amino acids.		
Research Areas:	Angiogenesis/Cardiovascular, Stem Cells & Differentiation		
AA Sequence:			
Human EG-VEGF:	AVITGACERD VQCGAGTCCA ISLWLRGLRM CTPLGREGEE CHPGSHKVPF FRKRKHHTCP CLPNLLCSRF PDGRYRCSMD LKNINF		
Murine EG-VEGF:	AVITGACERD IQCGAGTCCA ISLWLRGLRL CTPLGREGEE CHPGSHKIPF LRKRQHHTCP CSPSLLCSRF PDGRYRCFRD LKNANF		
Estimated pI:	Human EG-VEGF: 11.04 Murine EG-VEGF: 11.57	Accession #:	Human EG-VEGF: P58294 Murine EG-VEGF: Q14A28
NCBI Gene ID:	Human EG-VEGF: 84432 Murine EG-VEGF: 246691		

Product Name	Catalog Number	MW	AA
Recombinant Human EG-VEGF	100-44	9.6 kDa	86
Recombinant Murine EG-VEGF	315-29	9.6 kDa	86

ENA-78 (CXCL5)

Synonyms:	Epithelial Neutrophil Activating Peptide-78		
Description:	ENA-78 is a CXC chemokine that signals through the CXCR2 receptor. It is expressed in monocytes, platelets, endothelial cells, and mast cells. ENA-78 is a chemoattractant for neutrophils. The three naturally occurring variants of human ENA-78; ENA 5-78, ENA 9-78 and ENA 10-78, contain 74, 70, and 69 amino acid residues, respectively, and possess the same biological activity. ENA-78 contains the four conserved cysteine residues present in CXC chemokines, and also contains the ‘ELR’ motif common to CXC chemokine that bind to the CXCR1 and CXCR2 receptors.		
Research Areas:	Angiogenesis/Cardiovascular, Chemotaxis, Immune System, Inflammation, Wound Healing		
AA Sequence:			
Human ENA-78 (5-78 a.a.):	AAVLRELRCV CLQTTQGVHP KMISNLQVFA IGPQCSKVEV VASLKGKEI CLDPEAPFLK KVIQKILDGG NKEN		
Human ENA-78 (8-78 a.a.):	LRELRCVCLQ TTQGVHPKMI SNLQVFAIGP QCSKVEVVAS LKNGKEICLD PEAPFLKKVI QKILDGGNKE N		
Estimated pI:	Human ENA-78 (5-78 a.a.): 9.34 Human ENA-78 (8-78 a.a.): 9.34	Accession #:	Human ENA-78 (5-78 a.a.): P42830 Human ENA-78 (8-78 a.a.): P42830
NCBI Gene ID:	Human ENA-78 (5-78 a.a.): 6374 Human ENA-78 (8-78 a.a.): 6374		

Product Name	Catalog Number	MW	AA
Recombinant Human ENA-78 (CXCL5) (5-78 a.a)	300-22	8.0 kDa	74
Recombinant Human ENA-78 (CXCL5) (8-78 a.a)	300-22B	7.8 kDa	71

Endostatin

Synonyms:	COL18A1
Description:	Endostatin is a naturally occurring 20 kDa polypeptide derived from the C-terminal portion of type XVIII collagen. It functions as an anti-angiogenic cytokine that is expressed in various organs with the highest levels in liver, lung and kidney. Endostatin inhibits angiogenesis by blocking the pro-angiogenic activities of VEGF and FGF-basic.
Research Areas:	Angiogenesis/Cardiovascular, Immune System
AA Sequence:	MHSHRDFQPV LHLVALNSPL SGGMRGIRGA DFQCFQQARA VGLAGTFRAF LSSRLQDLYS IVRRADRAAV PIVNLKDELL FPSWEALFSG SEGPLKPGAR IFSFDGKDVL RHPTWPQKSV WHGSDPNGRR LTESYCETWR TEAPSATGQA SLLGGRLLG QSAASCHHAY IVLCIENSFM TASK
Estimated pI:	9.91Accession #: P39060
NCBI Gene ID:	80781

Product Name	Catalog Number	MW	AA
Recombinant Human Endostatin	150-01	20.2 kDa	184

Enterokinase

Synonyms:	None									
Description:	Proteases (also called Proteolytic Enzymes, Peptidases, or Proteinases) are enzymes that hydrolyze the amide bonds within proteins or peptides. Most proteases act in a specific manner, hydrolyzing bonds at, or adjacent to, specific residues, or a specific sequence of residues contained within the substrate protein or peptide. Proteases play an important role in most diseases and biological processes, including prenatal and postnatal development, reproduction, signal transduction, the immune response, various autoimmune and degenerative diseases, and cancer. They are also an important research tool, frequently used in the analysis and production of proteins. Enterokinase sequentially cleaves carboxyl side of D-D-D-D-K. Human Enterokinase is expressed as a linear 1019 amino acid polypeptide precursor glycoprotein. Proteolytic processing of this precursor generates the biologically active form of Enterokinase, which consists of two polypeptide chains (heavy chain and light chain) held together by a single disulfide bond, resulting in formation of a biologically active heterodimer. The heavy chain consists of 784 amino acid residues, and the light chain consists of 235 amino acid residues.									
Research Areas:	Immune System									
AA Sequence:										
Heavy Chain:	LTIKESQRGA ALGQSHEARA TFKITSGVTY NPNLQDKLSV DFKVLAFDLQ QMIDEIFLSS NLKNEYKNSR VLQFENGSI I VVFDLFFAQW VSDQNVKEEL IQGLEANKSS QLVTFHIDLN SVDILDKLTT TSHLATPGNV SIECLPGSSP CTDALTCIKA DLFCDGEVNC PDGSDEDNKM CATVCDGRFL LTGSSGSFQA THYPKPSETS VVCQWIIIRVN QGLSIKLSFD DFNTYYTDIL DIYEGVGSSK ILRASIWETN PGTIRIFSNQ VTATFLIESD ESDYVGFNAT YTAFNSSELN NYEKINCNFE DGFCFWVQDL NDDNEWERIQ GSTFSPFTGP NFDHTFGNAS GFYISTPTGP GGRQERVGLL SLPLDPTLEP ACLSFWYHMY GENVHKLSIN ISNDQNMEKT VFQKEGNYGD WNWYGQVTLN ETVKFKVAFN AFKNKILSDI ALDDISLTYG ICNGSLYPEP TLVPTPPPPEL PTDCGGPFEL WEPNTTFSST NFPNSYPNLA FCVWILNAQK GKNIQLHFQE FDLENINDVV EIRDGEEADS LLLAVYTGP PVKDVFSTTN RMTVLLITND VLARGGFKAN FTTGYHLGIP EPCKADHFQC KNGECVPLVN LCDGHLHCED GSDEADCVR FNGTTNNNGL VRFRIQSIWH TACAENWTTQ ISNDVCQLLG LGSGNSSKPI FSTDGGPFVK LNTAPDGHLI LTPSQQCLQD SLIRLQCNHK SCGKKLAAQD ITPK									
Light Chain:	IVGGSNAKEG AWPWVVG LYY GGRLLCGASL VSSDWLVSAA HCVYGRNLEP SKWTAAILGLH MKSNLTSPQT VPRILIDEIVI NPHYNRRRKD NDIAMMHLEF KVNYYTDYIQP ICLPEENQVF PPGRNCSIAG WGTVVYQGT ANILQEADV LLSNERCQQQ MPEYNITENM ICAGYEEGGI DSCQGDGGP LMCQENNRWF LAGVTSFGYK CALPNRPGVY ARVSRFTEWI QSFLH									
Estimated pI:	Heavy Chain: 4.67 Light Chain: 5.68		Accession #: P98703							
NCBI Gene ID:	5651									

Product Name	Catalog Number	MW	AA
Recombinant Human Enterokinase	450-48C	108.7 kDa	979
Animal-Free Recombinant Human Enterokinase	AF-450-48C	108.7 kDa	979

Eotaxin (CCL11)

Synonyms:	None		
Description:	Eotaxin is a CC chemokine that signals through the CCR3 receptor. It is produced by IFN-γ-stimulated endothelial cells and TNF-activated monocytes. Eotaxin selectively chemoattracts eosinophils and, along with Eotaxin-2 and Eotaxin-3, plays a key role in the regulation of eosinophil recruitment in the asthmatic lung and in allergic reactions. Eotaxin contains the four highly conserved cysteine residues present in CC chemokines.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:			
Human Eotaxin (CCL11):	GPASVPTTCC FNLANKIPL QRLESYRRIT SGKCPQKAVI FKTKLAKDIC ADPKKKWVQD SMKYLDQKSP TPKP		
Murine Eotaxin (CCL11):	HPGSIPTSCC FIMTSKKIPN TLLKSYKRIT NNRCTLKAIV FKTRLGKEIC ADPKKKWVQD ATKHLDQKLQ TPKP		
Estimated pI:	Human Eotaxin (CCL11): 10.24 Murine Eotaxin (CCL11): 10.39	Accession #:	Human Eotaxin (CCL11): P51671 Murine Eotaxin (CCL11): P48298
NCBI Gene ID:	Human Eotaxin (CCL11): 6356 Murine Eotaxin (CCL11): 20292		

Product Name	Catalog Number	MW	AA
Recombinant Human Eotaxin (CCL11)	300-21	8.3 kDa	74
Animal-Free Recombinant Human Eotaxin (CCL11)	AF-300-21	8.3 kDa	74
Recombinant Murine Eotaxin (CCL11)	250-01	8.4 kDa	74

Eotaxin-2 (CCL24)

Synonyms:

MPIF-2, CkB-6

Description:

Eotaxin-2 is a CC chemokine that signals through the CCR3 receptor. It is produced by activated monocytes and T lymphocytes. Eotaxin-2 selectively chemoattracts cells expressing CCR3, including eosinophils, basophils, Th2 T cells, mast cells, and certain subsets of dendritic cells. Additionally, Eotaxin-2 inhibits the proliferation of multipotential hematopoietic progenitor cells. The mature protein, which also includes a C-terminal truncation, contains 78 amino acid residues (92 a.a. residues for the murine homolog, without C-terminal truncation). Eotaxin-2 contains the four conserved cysteine residues present in CC chemokines.

Research Areas:

Chemotaxis, Immune System, Wound Healing

AA Sequence:

Human Eotaxin-2 (CCL24):

VVIPSPCCMF FVSKRIPENR VVSQYLSSRS TCLKGGVIFT TKKGQQFCGD PKQEWVQRYM KNLDAKQKKA SPRARAVA

Murine Eotaxin-2 (CCL24):

VTIPSSCCTS FISKKIPENR VVSQYLANGS ICPKAGVIFI TKKGHKICTD PKLLWVQRHI QKLDKKNQP SKGAKAVRTK FAVQRRRGNS TEV

Estimated pI:

Human Eotaxin-2 (CCL24): 10.81
Murine Eotaxin-2 (CCL24): 11.35

Accession #:

Human Eotaxin-2 (CCL24): O00175
Murine Eotaxin-2 (CCL24): Q9JKC0

NCBI Gene ID:

Human Eotaxin-2 (CCL24): 6369
Murine Eotaxin-2 (CCL24): 56221

Product Name	Catalog Number	MW	AA
Recombinant Human Eotaxin-2 (CCL24)	300-33	8.8 kDa	78
Recombinant Murine Eotaxin-2 (CCL24)	250-22	10.36 kDa	93

82

Eotaxin-3 (CCL26)

Synonyms:	None		
Description:	Eotaxin-3 is a CC chemokine that signals through the CCR3 receptor. It is produced by endothelial cells stimulated with IL-4 or IL-13. Eotaxin-3 selectively targets cells expressing CCR3, including eosinophils, basophils, T cells and monocytes. Eotaxin-3 has similar activity to Eotaxin and Eotaxin-2, but the three Eotaxins share only a low degree of sequence homology. Eotaxin-3 contains the four highly conserved cysteine residues present in CC chemokines.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:	TRGSDISKTC CFQYSHKPLP WTWVRSYEFT SNSCSQRAVI FTTKRGKKVC THPRKKWVQK YISLLKTPKQL		
Estimated pI:	10.91	Accession #:	Q9Y258
NCBI Gene ID:	10344		

Product Name	Catalog Number	MW	AA
Recombinant Eotaxin-3 (CCL26)	300-48	8.4 kDa	71

Epigen

Synonyms:EPG, Epithelial mitogen

Description:Epigen is an EGF-related polypeptide growth factor that signals through the ErbB receptor-1. It is produced in several tissues, including the testis, liver, and heart, as well as in certain tumor cells. Epigen is mitogenic for fibroblasts and epithelial cells. Human Epigen is initially synthesized as a glycosylated 14.7 kDa transmembrane precursor protein, which is processed by proteolytic cleavage to produce a mature soluble sequence.

Research Areas:Cancer, Immune System, Inflammation, Stem Cells & Differentiation

AA Sequence:AVTVTPPITA QQADNIEGPI ALKFSHLCLE DHNSYCINGA CAFHHELEKA ICRCFTGYTG ERCEHLTLTS
YA

Estimated pI:6.03**Accession #:** Q6UW88

NCBI Gene ID:255324

Product Name	Catalog Number	MW	AA
Recombinant Human Epigen	100-51	7.9 kDa	72

Epiregulin

Synonyms:	EREG
Description:	Epiregulin is an EGF-related growth factor that binds specifically to EGFR (ErbB1) and ErbB4, but not ErbB2 or ErbB3. It is expressed mainly in the placenta and peripheral blood leukocytes, as well as in certain carcinomas of the bladder, lung, kidney and colon. Epiregulin stimulates the proliferation of keratinocytes, hepatocytes, fibroblasts and vascular smooth muscle cells. It also inhibits the growth of several tumor-derived epithelial cell lines. Human Epiregulin is initially synthesized as a glycosylated 19.0 kDa transmembrane precursor protein, which is processed by proteolytic cleavage to produce a 6.0 kDa mature secreted sequence.
Research Areas:	Cancer, Dermatitis, Hypertension, Immune System, Stem Cells & Differentiation
AA Sequence:	MVAQVSITKC SSDMNGYCLH GQCIYLVDMs QNYCRCEVGy TGVRCEHFFL
Estimated pI:	6.03Accession #: O14944
NCBI Gene ID:	2069

Product Name	Catalog Number	MW	AA
Recombinant Human Epiregulin	100-04	5.6 kDa	50
Animal-Free Recombinant Human Epiregulin	AF-100-04	5.6 kDa	50

EPO

Synonyms:

Erythropoietin, Epoetin

Description:

Erythropoietin (EPO) is a glycoprotein hormone that is principally known for its role in erythropoiesis, where it is responsible for stimulating proliferation and differentiation of erythroid progenitor cells.The differentiation of CFU-E (Colony Forming Unit-Erythroid) cells into erythrocytes can only be accomplished in the presence of EPO. Physiological levels of EPO in adult mammals are maintained primarily by the kidneys, whereas levels in fetal or neonatal mammals are maintained by the liver. EPO also can exert various non-hematopoietic activities, including vascularization and proliferation of smooth muscle, neural protection during hypoxia, and stimulation of certain B cells.

Research Areas:

Angiogenesis/Cardiovascular, Immune System, Neurobiology, Stem Cells & Differentiation

AA Sequence:

APPRLICDSR VLERYLLEAK EAENITTGCA EHCSLNENIT VPDTKVNFYA WKRMEVGQQA VEVWQGLALL
SEAVLRGQAL LVNSSQPWEP LQLHVDKAVS GLRSLTTLLR ALGAQKEAIS PPDAASAAPL RTITADTFRK
LFRVYSNFLR GKLKLYTGEA CRTGDR

Estimated pI:

9.2

Accession #:

P01588

NCBI Gene ID:

2056

Product Name	Catalog Number	MW	AA
Recombinant Human EPO	100-64	18.4 kDa	166

E-Selectin

Synonyms:

Endothelial Leukocyte Adhesion Molecule 1 (ELAM1), CD62E, SELE

Description:

Selectins are a family of calcium-dependent type 1 transmembrane proteins. Endothelial (E)-selectin is a heavily glycosylated transmembrane protein expressed by activated endothelial cells in microvascular linings. E-selectin, along with P-selectin and L-selectin, initiate recruitment of circulating leukocytes from blood to sites of inflammation in the vascular lining through interaction with specific cell surface-associated carbohydrate determinants. E-selectin consists of an N-terminal type 1 lectin domain, an EGF-like domain, 6 sushi (CCP/SCR) domains, a transmembrane sequence, and a short cytoplasmic domain.

Research Areas:

Angiogenesis/Cardiovascular, Chemotaxis, Immune System, Inflammation

AA Sequence:

WSYNTSTEAM TYDEASAYCQ QRYTHLVAIQ NKEEIEYLNS ILSYSPSYW IGIRKVNNVW VWVGTQKPLT
EEAKNWAPGE PNNRQKDEDC VEIYIKREKD VGMWNDERCS KKKLALCYTA ACTNTSCSGH GECVETINNY
TCKCDPGFSG LKCEQIVNCT ALESPEHGSL VCSHPLGNFS YNSSCSISCD RGYLPSSMET MQCMSSGEWS
APIPACNVVE CDAVTNPANG FVECFQNPGS FPWNTCTCFD CEEGFELMGA QSLQCTSSGN WDNEKPTCKA
VTCRAVRQPQ NGSVRC SHSP AGEFTFKSSC NFTCEE GFML QGPAQVECTT QGQWTQQIPV CEA FQCTALS
NPERGYMNCL PSASGSFRYG SSCEFSCEQG FVLKGSKRLQ CGPTGEWDNE KPTCEAVRCD AVHQPPKGLV
RCAHSPIGEF TYKSSCAFSC EEGFELHGST QLECTSQGQW TEEVPSCQV KCSSLAVPGK INMSCSGEPV
FGTVCKFACP EGWTLNGSAA RTCGATGHWS GLLPTCEAPT ESNIP

Estimated pI:

4.76

Accession #:

P16581

NCBI Gene ID:

6401

Product Name	Catalog Number	MW	AA
Recombinant Human E-Selectin	150-15	58.6 kDa	535

Exodus-2 (CCL21)

Synonyms:	6Ckine, SLC		
Description:	Exodus-2 is a CC chemokine that signals through the CCR7 receptor. It is expressed in lymph nodes of certain endothelial cells, and in the spleen and appendix. Exodus-2 chemoattracts T and B lymphocytes and inhibits hematopoiesis. Exodus-2 contains six cysteine residues, including the four conserved cysteines present in CC chemokines.		
Research Areas:	AIDS/HIV, Chemotaxis, Immune System, Inflammation, Wound Healing		
AA Sequence:			
Human Exodus-2 (CCL21):	SDGGAQDCCL KYSQRKIPAK VVRSYRKQEP SLGCSIPAIL FLPRKRSQAE LCADPKELWV QQIMQHLDKT PSPQKPAQGC RKDRGASKTG KKGKSGSKGCR KTERSQTPKG P		
Murine Exodus-2 (CCL21):	SDGGGQDCCL KYSQKKIPYS IVRGYRKQEP SLGCPPIAIL FLPRKHSKPE LKANPEEGWV QNLMRRLDQP PAPGKQSPGC RKNRGTSKSG KKGKSGSKGCK RTEQTQPSRG		
Estimated pI:	Human Exodus-2 (CCL21): 10.52 Murine Exodus-2 (CCL21): 10.52	Accession #:	Human Exodus-2 (CCL21): O00585 Murine Exodus-2 (CCL21): P86793
NCBI Gene ID:	Human Exodus-2 (CCL21): 6366 Murine Exodus-2 (CCL21): 65956		

Product Name	Catalog Number	MW	AA
Recombinant Human Exodus-2 (CCL21)	300-35	12.2 kDa	111
Recombinant Murine Exodus-2 (CCL21)	250-13	12.0 kDa	110

sFas Ligand

Synonyms:	soluble Fas Ligand (sFasL), TNFSF6, CD95L, Apo I Ligand, APTL, APT1LG1, CD178		
Description:	Fas Ligand (FasL) is a member of the TNF superfamily that is expressed on the cell surface of activated T cells. Binding of FasL to Fas Receptor triggers apoptosis in Fas-bearing cells. FasL has the ability to kill T cells and activated B cells, which leads to down-regulation of the immune response. The mechanism of Fas-induced apoptosis involves recruitment of pro-caspase 8 through an adaptor molecule called FADD, followed by processing of the pro-enzyme into active forms. These active caspases then cleave various cellular substrates, leading to the eventual cell death. Both human and murine sFasL are fully active on human and murine cells.		
Research Areas:	Apoptosis, Immune System		
AA Sequence (monomer):	HHHHHHHPS PPPEKKELRK VAHLTGKSNS RSMPLWEDT YGIVLLSGVK YKKGGLVINE TGLYFVYSKV YFRGQSCNNL PLSHKVYMRN SKYPQDLVMM EGKMMSYCTT GQMWARSSYL GAVFNLTSAD HLYVNVSELS LVNFEESEQTF FGlyKL		
Estimated pI:	9.26	Accession #:	P48023
NCBI Gene ID:	356		

Product Name	Catalog Number	MW	AA
Recombinant Human sFas Ligand	310-03H	17.9 kDa	156

sFas Receptor

Synonyms:	soluble Fas Receptor (sFasR), TNFRSF6, CD95, Apo I, Fas Antigen		
Description:	Fas and Fas Ligand (FasL) belong to the TNF superfamily, and are type I and type II transmembrane proteins, respectively. Binding of FasL to Fas triggers apoptosis in Fas-bearing cells. The mechanism of apoptosis involves recruitment of pro-caspase 8 through an adaptor molecule called FADD, followed by processing of the pro-enzyme into active forms. These active caspases then cleave various cellular substrates, leading to the eventual cell death. sFasR is capable of inhibiting FasL-induced apoptosis by acting as a decoy receptor that serves as a sink for FasL. The full length Fas (receptor) is a 319 amino acid type I transmembrane protein, which contains a 157 amino acid extracellular domain, a 17 amino acid transmembrane domain, and a 145 amino acid cytoplasmic domain.		
Research Areas:	AIDS/HIV, Immune System		
AA Sequence:	MRLSSKSVNA QVTDINSKGL ELRKTVTTVE TQNLEGLHHD GQFCHKPCPP GERKARDCTV NGDEPDCVPC QEGKEYTDKA HFSSKCRRCR LCDEGHGLEV EINCTRTQNT KCRCKPNFFC NSTVCEHCDP CTKCEHGIIK ECTLTSNTKC KEEGSR		
Estimated pI:	8.25	Accession #:	P25445
NCBI Gene ID:	355		

Product Name	Catalog Number	MW	AA
Recombinant Human sFas Receptor	310-20	17.6 kDa	157

Fetuin A/AHSG

Synonyms:

Alpha-2-HS-glycoprotein, Alpha-2-Z-globulin, Ba-alpha-2-glycoprotein

Description:

Fetuin A/AHSG is a human plasma glycoprotein belonging to the Cystatin family of protease inhibitors. It is highly expressed in embryonic cells and adult hepatocytes, and is expressed to a lesser extent in monocytes/macrophages. Fetuin A/AHSG is a major serum protein component that exerts various calcium-dependent physiological activities, and can mediate growth signaling in certain tumor cells. It also can act as a natural antagonist against specific TGF-β and BMP signaling proteins.

Research Areas:

Bone/Skeletal/Cartilage, Cancer, Immune System

AA Sequence:

A-chain:

APHGPGLIYR QPNCDDPETE EAALVAIDYI NQNLPWGYKH TLNQIDEVKV WPQQPSGELF EIEIDTLETT
CHVLDPTPVA RCSVRQLKEH AVEGDCDFQL LKLDGKFSVV YAKCDSSPDS AEDVRKVCQD CPLLAPLNDT
RVVHAAKAAL AAFNAQNNGS NFQLEEISRA QLVPLPPSTY VEFTVSGTDC VAKEATEAAK CNLLAEKQYG
FCKATLSEKL GGAEVAVTCT VFQTQPVTSQ PQPEGANEAV PTPVVDPDAP PSPPLGAPGL PPAGSPDSDH
VL

B-chain:

TVVQPSVGAA AGPVVPPCPG RIRHFKV

Estimated pI:

4.54

Accession #:

P02765

NCBI Gene ID:

197

Product Name	Catalog Number	MW	AA
Recombinant Human Fetuin A/AHSG	140-13	32.9 kDa	309

FGF Superfamily

Synonyms:	FGF-acidic: Fibroblast Growth Factor-acidic, FGF-1, HBGF-1, ECGF-beta; FGF-basic: Fibroblast Growth Factor-basic, FGF-2, HBGF-2, Prostatropin; FGF-4 Fibroblast Growth Factor-4, HST-1, Transforming protein KS3, HBGF-4; FGF-5: Fibroblast Growth Factor-5, HBGF-5, Smag-82; FGF-6: Fibroblast Growth Factor-6, HBGF-6, HST-2; FGF-7: (See KGF Page); FGF-8a: Fibroblast Growth Factor-8, FGF-8a, AIGF, HBGF-8; FGF-8b: Fibroblast Growth Factor-8, AIGF, HBGF-8; FGF-9: Fibroblast Growth Factor-9, GAF (Glia-Activating Factor), HBGF-9; FGF-10: Fibroblast Growth Factor-10, FGFA, Keratinocyte Growth Factor-2; FGF-16: Fibroblast Growth Factor-16, FGFG; FGF-17: Fibroblast Growth Factor-17, FGFH; FGF-18: Fibroblast Growth Factor-18, FGFI, zFGF5; FGF-19: Fibroblast Growth Factor-19, FGFJ; FGF-20: Fibroblast Growth Factor-20, FGFK; FGF-21: Fibroblast Growth Factor-21, FGFL; FGF-23: Fibroblast Growth Factor-23, FGFN
Description:	The Fibroblast Growth Factor (FGF) Superfamily is comprised of multifunctional proteins that serve to regulate a number of complex biological processes related to the development, restoration, and/or redistribution of prenatal and postnatal tissue, as well as angiogenesis, wound healing, nerve regeneration, chronic inflammation, and cancer growth. Members of the FGF Superfamily function through paracrine, autocrine and intracrine pathways to promote spatial and temporal integrations of several cell responses, such as proliferation, growth, differentiation, and migration. While proteins of the FGF family exhibit only a modest degree of primary sequence homology, they preserve the ability to signal through at least one of four tyrosine kinase receptors, which include FGFR1 through FGFR4, and interact with heparin sulphate proteoglycans (HSPGs). Given the significance of fibroblast growth factor involvement within such an array of biological processes and the abundance of conditions associated with deviations from normal FGF production and activity, understanding normal and aberrant FGF function has become critical to current research concerning the prevention and treatment of FGF-associated diseases.
Research Areas:	Angiogenesis/Cardiovascular, Bone/Skeletal/Cartilage, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells and Differentiation, Wound Healing
AA Sequence:	
Human FGF-acidic:	MFNLPPGNYK KPKLLYCSNG GHFLRILPDG TVDGTDRSD QHIQLQLSAE SVGEVYIKST ETGQYLAMDT DGLLYGSQTP NEECLFLERL EENHYNTYIS KKHAEKNWV GLKKNNGSCKR GPRTHYGQKA ILFLPLPVSS D
Murine FGF-acidic:	MFNLPLGNYK KPKLLYCSNG GHFLRILPDG TVDGTDRSD QHIQLQLSAE SAGEVYIKGT ETGQYLAMDT EGLLYGSQTP NEECLFLERL EENHYNTYTS KKHAEKNWV GLKKNNGSCKR GPRTHYGQKA ILFLPLPVSS D
Rat FGF-acidic:	MFNLPLGNYK KPKLLYCSNG GHFLRILPDG TVDGTDRSD QHIQLQLSAE SAGEVYIKGT ETGQYLAMDT EGLLYGSQTP NEECLFLERL EENHYNTYTS KKHAEKNWV GLKKNNGSCKR GPRTHYGQKA ILFLPLPVSS D
Human FGF-basic (146 a.a):	PALPEDGGSG AFPPGHFKDP KRLYCKNGGF FLRIHPDGRV DGVREKSDPH IKLQLQAEER GVVSIKGVCA NRYLAMKEDG RLLASKCVTD ECTFFERLES NNYNTYRSRK YTSWYVALKR TGQYKLGSKT GPGQKAILFL PMSAKS
Human FGF-basic (154 a.a):	AAGSITTLPA LPEDGGSGAF PPGHFKDPKR LYCKNGGFFL RIHPDGRVDG VREKSDPHIK LQLQAEERG VSIKGVCANR YLAMKEDGRL LASKCVTDEC FFFERLESNN YNTYRSRKYT SWYVALKRTG QYKLGSKTGP GQKAILFLPM SAKS
Murine FGF-basic:	PALPEDGGAA FPPGHFKDPK RLYCKNGGFF LRIHPDGRVD GVREKSDPHV KLQLQAEERG VVSIKGVCAN RYLAMKEDGR LLASKCVTEE CFFFERLESN NYNTYRSRKY SSWYVALKRT GQYKLGSKTG PGQKAILFLP MSAKS
Rat FGF-basic:	PALPEDGGGA FPPGHFKDPK RLYCKNGGFF LRIHPDGRVD GVREKSDPHV KLQLQAEERG VVSIKGVCAN RYLAMKEDGR LLASKCVTEE CFFFERLESN NYNTYRSRKY SSWYVALKRT GQYKLGSKTG PGQKAILFLP MSAKS
Human FGF-4:	GRGGAAAPTA PNGTLEAELE RRWESLVALS LARLPVAAQP KEAAVQSGAG DYLLGIKRLR RLYCNVGIGF HLQALPDGRI GGAHADTRDS LLELSPVERG VVSIFGVASR FFFVAMSSKGK LYGSFFFTDE CTFKEILLPN NYNAYESYKY PGMFIALSKN GKTKKGNRVS PTMKVTHFLP RL

FGF Superfamily (Continued)

AA Sequence:

Human FGF-5:	MAWAHGEKRL	APKGQPGPAA	TDRNPIGSSS	RQSSSSAMSS	SSASSSPAAS	LGSQGSGLAQ	SSFQWSPSGR
	RTGSLYCRVG	IGFHLQIYPD	GKVNGSHEAN	MLSVLEIFAV	SQGIVGIRGV	FSNKFLAMSK	KGKLHASAKF
	TDDCKFRERF	QENSINTYAS	AIHRTEKTGR	EWYVALNKRK	KAKRGCSPRV	KPQHISTHFL	PRFKQSEQPE
	LSFTVTVPEK	KNPPSPIKSK	IPLSAPRKNT	NSVKYRLKFR	FG		
Human FGF-6:	GTRANNTLLD	SRGWGTLISR	SRAGLAGEIA	GVNWESGYLV	GIKRQRRLYC	NVGIGFHLQV	LPDGRISGTH
	EENPYSLEEI	STVERGVVSL	FGVRSALFVA	MNSKGRLYAT	PSFQEECKFR	ETLLPNNNYA	YESDLYQGTY
	IALSKYGRVK	RGSKVSPIMT	VTHFLPRI				
Human FGF-8a:	QHVREQSLVT	DQLSRRLIRT	YQLYSRTSGK	HVQVLANKRI	NAMAEDGDPF	AKLIVETDTF	GSRVVRVGAE
	TGLYICMNKK	GKLIAKSNGK	GKDCVFTEIV	LENNYTALQN	AKYEGWYMAF	TRKGRPRKGS	KTRQHQRVH
	FMKRLPRGHH	TTEQSLRFEF	LNYPPTFTRSL	RGSQRTWAPE	PR		
Human/Murine FGF-8b:	MQVTVQSSPN	FTQHVREQSL	VTDQLSRRLI	RTYQLYSRTS	GKHVQVLANK	RINAMAEDGD	PFAKLIVETD
	TFGSRVVRVG	AETGLYICMN	KKGKLIAKSN	GKGKDCVFTE	IVLENNYTAL	QNAKYEGWYM	AFTRKGRPRK
	GSKTRQHQR	VHFMKRLPRG	HHTTEQSLRF	EFLNYPPTFTR	SLRGSQRTWA	PEPR	
Human FGF-9:	PLGEVGNFYG	VQDAVPFGNV	PVLPVDSFVL	LSDHLGQSEA	GGLPRGPAVT	DLDHLKGILR	RRQLYCRTGF
	HLEIFPNGTI	QGTRKDHSRF	GILEFISIAV	GLVSIRGVDS	GLYLGMEKNG	ELYGSEKLTQ	ECVFREQFEE
	NWYNTYSSNL	YKHVDTGRRY	YVALNKDGTP	REGTRTKRHQ	KFTHFLPRPV	DPDKVPELYK	DILSQS
Murine FGF-9:	PLGEVGSYFG	VQDAVPFGNV	PVLPVDSFVL	LNDHLGQSEA	GGLPRGPAVT	DLDHLKGILR	RRQLYCRTGF
	HLEIFPNGTI	QGTRKDHSRF	GILEFISIAV	GLVSIRGVDS	GLYLGMEKNG	ELYGSEKLTQ	ECVFREQFEE
	NWYNTYSSNL	YKHVDTGRRY	YVALNKDGTP	REGTRTKRHQ	KFTHFLPRPV	DPDKVPELYK	DILSQS
Human FGF-10:	MLGQDMVSPE	ATNSSSSSFS	SPSSAGRHRV	SYNHLQGDVR	WRKLFSFTKY	FLKIEKNGKV	SGTKKENCYP
	SILEITSVEI	GVVAVKAINS	NYLAMNKKK	KLYGSKEFNN	DCKLKERIEE	NGYNTYASFN	WQHNGRQMYV
	ALNGKGAPRR	GQKTRRKNTS	AHFLPMVVHS				
Human FGF-16:	AEVGGVFASL	DWDLHGFSSS	LGNVPLADSP	GFLNERLGQI	EGKLQRGSPT	DFAHLKGILR	RRQLYCRTGF
	HLEIFPNGTV	HGTRHDHSRF	GILEFISLAV	GLISIRGVDS	GLYLGMEKNG	ELYGSKKLTR	ECVFREQFEE
	NWYNTYASTL	YKHSDSERQY	YVALNKDGSP	REGYRTRKHQ	KFTHFLPRPV	DPSKLPSMSR	DLFHYR
Human FGF-17:	MTQGENHPSP	NFNQYVRDQG	AMTDQLSRRQ	IREYQLYSRT	SGKHVQVTGR	RISATAEDGN	KFAKLIVETD
	TFGSRVRIKG	AESEKYICMN	KRGKLGKPS	GKSKDCVFTE	IVLENNYTAF	QNAHHEGWFM	AFTRQGRPRQ
	ASRSRQNRQ	AHFIKRLYQG	QLPFPNHAEK	QKQFEFVGSA	PTRRTKRTRR	PQPLT	
Human FGF-18:	AEENVDFRIH	VENQTRARDD	VSRKQLRLYQ	LYSRTSGKHI	QVLGRRISAR	GEDGDKYAQL	LVETDTFGSQ
	VRIKGKETEF	YLCMNRKGKL	VGKPDGTSKE	CVFIEKVLEN	NYTALMSAKY	SGWYVGFTTK	GRPRKGPKTR
	ENQQDVHFMK	RYPKGQPELQ	KPFKYTTVTK	RSR			
Human FGF-19:	MRPLAFSDAG	PHVHYGWGDP	IRLRHLYTSG	PHGLSSCFLL	IRADGVVDCA	RQSAHSLLLE	IKAVALRTVA
	IKGVHSVRYL	CMGADGKMGG	LLQYSEEDCA	FEEIIRPDGY	NVYRSEKHRL	PVSLSSAKQR	QLYKNRGFLP
	LSHFLPMLPM	VPEEPEDLRG	HLESDFMFSS	LETDSMDPFG	LVTGLEAVRS	PSFEK	
Human FGF-20:	PLAEVGGFLG	GLEGLGQQVG	SHFLLPPAGE	RPPLLGERRS	AAERSARGGP	GAAQLAHLHG	ILRRRQLYCR
	TGFHLQILPD	GSVQGTRQDH	SLFGILEFIS	VAVGLVSIRG	VDSGLYLGMM	DKGELYGSEK	LTSECIFREQ
	FEENWYNTYS	SNIYKHGDTG	RRYFVALNKD	GTPRDGARSK	RHQKFTHFLP	RPVDPERVPE	LYKDLLMYT
Human FGF-21:	MHIPIDSSPL	LQFGGQVRQR	YLYTDDAQQT	EAHLEIREDG	TVGGAADQSP	ESLLQLKALK	PGVIQILGVK
	TSRFLCQRPD	GALYGSLLHFD	PEACSFRELL	LEDGYNVYQS	EAHGLPLHLP	GNKSPHRDPA	PRGPAPFLPL
	PGLPPALPEP	PGILAPQPPD	VGSSDPLSMV	GPSQGRSPSY	AS		

FGF Superfamily (Continued)

AA Sequence:

Human FGF-23:

MYPNASPLLGSSWGGLIHLYTATARNSYHLQIHKNGHVDGAPHQTIYSALMIRSEDAGFVVITGVMSRRYL
LCMDFRGNIFGSHYFDPENCRFQHQTLENGYDVYHSPQYHFLVSLGRAKR AFLPGMNPPPYSQFLSRRNE
IPLIHFNTPIPRRHTRSAEDDSERDPLNVLKPRARMTAPASCSQELPSAEDNSPMASDP LGVVRGGRVN
THAGGTGPEGCRPFAKFI

Murine FGF-23:

MYPDTSPLLGSNWGSLLTHLYTATARTSYHLQIHRDGHVDGTPHQTIYSALMITSEDAGSVVITGAMTRRF
LCMDLHGNIFGSLHFSPENC KFRQWTLENG YDVYLSQKHH YLVSLGRAKR IFQPGTNPPP FSQFLARRNE
VPLLHFYTVRPRRHTRSAEDPPERDPLNVLKPRPRATPVPVSCSRELPSAEEGGPAASDP LGVLRGRGD
ARGGAGGADR CRPFPRFV

Estimated pI:	Human FGF-acidic:	8.23	Accession #:	Human FGF-acidic:	P05230
	Murine FGF-acidic:	8.23		Murine FGF-acidic:	P61148
	Rat FGF-acidic:	8.23		Rat FGF-acidic:	P61149
	Human FGF-basic (146 a.a):	9.77		Human FGF-basic (146 a.a):	P09038
	Human FGF-basic (154 a.a):	9.77		Human FGF-basic (154 a.a):	P09038
	Murine FGF-basic:	9.77		Murine FGF-basic:	P15655
	Rat FGF-basic:	9.77		Rat FGF-basic:	P13109
	Human FGF-4:	9.82		Human FGF-4:	P08620
	Human FGF-5:	10.62		Human FGF-5:	P12034
	Human FGF-6:	9.92		Human FGF-6:	P10767
	Human FGF-8a:	10.65		Human FGF-8a:	P55075
	Human/Murine FGF-8b:	10.65		Human/Murine FGF-8b:	P55075
	Human FGF-9:	7.42		Human FGF-9:	P31371
	Murine FGF-9:	7.42		Murine FGF-9:	P54130
	Human FGF-10:	9.97		Human FGF-10:	O15520
	Human FGF-16:	9.37		Human FGF-16:	O43320
	Human FGF-17:	10.95		Human FGF-17:	O60258
	Human FGF-18:	9.98		Human FGF-18:	O76093
	Human FGF-19:	6.33		Human FGF-19:	O95750
	Human FGF-20:	9.12		Human FGF-20:	Q9NP95
	Human FGF-21:	5.33		Human FGF-21:	Q9NSA1
	Human FGF-23:	9.44		Human FGF-23:	Q9GZV9
	Murine FGF-23:	10.14		Murine FGF-23:	Q9EPC2

NCBI Gene ID:	Human FGF-acidic:	2246
	Murine FGF-acidic:	14164
	Rat FGF-acidic:	25317
	Human FGF-basic (146 a.a):	2247
	Human FGF-basic (154 a.a):	2247
	Murine FGF-basic:	14173
	Rat FGF-basic:	54250
	Human FGF-4:	2249
	Human FGF-5:	2250
	Human FGF-6:	2251
	Human FGF-8a:	2253
	Human/Murine FGF-8b:	2253
	Human FGF-9:	2254
	Murine FGF-9:	14180
	Human FGF-10:	2255
	Human FGF-16:	8823
	Human FGF-17:	8822
	Human FGF-18:	8817
	Human FGF-19:	9965
	Human FGF-20:	26281
	Human FGF-21:	26291
	Human FGF-23:	8074
	Murine FGF-23:	64654

FGF Superfamily continued on next page...

FGF Superfamily (Continued)

Product Name	Catalog Number	MW	AA
Recombinant Human FGF-acidic	100-17A	16.8 kDa	141
Animal-Free Recombinant Human FGF-acidic	AF-100-17A	16.8 kDa	141
Recombinant Murine FGF-acidic	450-33A	15.9 kDa	141
Recombinant Rat FGF-acidic	400-29A	15.9 kDa	141
Recombinant Human FGF-basic (146 a.a.)	100-18C	16.4 kDa	146
Animal-Free Recombinant Human FGF-basic (146 a.a.)	AF-100-18C	16.4 kDa	146
Recombinant Human FGF-basic (154 a.a.)	100-18B	17.2 kDa	154
Animal-Free Recombinant Human FGF-basic (154 a.a.)	AF-100-18B	17.2 kDa	154
PeptoGMP® Recombinant Human FGF-basic	GMP100-18B	17.2 kDa	154
Recombinant Murine FGF-basic	450-33	16.3 kDa	145
Animal-Free Recombinant Murine FGF-basic	AF-450-33	16.3 kDa	145
Recombinant Rat FGF-basic	400-29	16.3 kDa	145
Recombinant Human FGF-4	100-31	19.7 kDa	182
Animal-Free Recombinant Human FGF-4	AF-100-31	19.7 kDa	182
Recombinant Human FGF-5	100-34	27.6 kDa	252
Recombinant Human FGF-6	100-30	18.7 kDa	168
Animal-Free Recombinant Human FGF-6	AF-100-30	18.7 kDa	168
Recombinant Human KGF (FGF-7) [See KGF page]	100-19	18.9 kDa	163
Animal-Free Recombinant Human KGF (FGF-7) [See KGF page]	AF-100-19	18.9 kDa	163
Recombinant Human FGF-8a	100-25A	21.2 kDa	182
Recombinant Human/Murine FGF-8b	100-25	22.5 kDa	194
Animal-Free Recombinant Human/Murine FGF-8b	AF-100-25	22.5 kDa	194
Recombinant Human FGF-9	100-23	23.2 kDa	206
Animal-Free Recombinant Human FGF-9	AF-100-23	23.2 kDa	206
Recombinant Murine FGF-9	450-30	23.3 kDa	206
Recombinant Human FGF-10	100-26	19.3 kDa	170
Animal-Free Recombinant Human FGF-10	AF-100-26	19.3 kDa	170
Recombinant Human FGF-16	100-29	23.6 kDa	206
Recombinant Human FGF-17	100-27	22.7 kDa	195
Recombinant Human FGF-18	100-28	20.1 kDa	173
Animal-Free Recombinant Human FGF-18	AF-100-28	20.1 kDa	173
Recombinant Human FGF-19	100-32	21.8 kDa	195
Animal-Free Recombinant Human FGF-19	AF-100-32	21.8 kDa	195
Recombinant Human FGF-20	100-41	23.2 kDa	209
Recombinant Human FGF-21	100-42	19.5 kDa	182
Animal-Free Recombinant Human FGF-21	AF-100-42	19.5 kDa	182
Recombinant Human FGF-23	100-52	25.5 kDa	228
Recombinant Murine FGF-23	450-55	25.5 kDa	228

FGF-BP-1

Synonyms:	Fibroblast growth factor binding protein 1, FGF-BP, FGF-binding protein 1, HBp17		
Description:	The Fibroblast Growth Factor (FGF) Superfamily is comprised of multifunctional proteins that serves to regulate several complex biological processes related to the development, restoration, and/or redistribution of prenatal and postnatal tissue, as well as angiogenesis, wound healing, nerve regeneration, chronic inflammation, and cancer growth. Members of the FGF Superfamily function through paracrine, autocrine and intracrine pathways to promote spatial and temporal integrations of several cell responses, such as proliferation, growth, differentiation, and migration. Fibroblast growth factor binding protein 1 (FGF-BP-1) is a secreted glycoprotein, which contains both a heparin-binding domain and a distinct FGF-binding region, that is shed into circulation where it acts as a chaperone molecule for FGFs, most notably FGF-acidic and FGF-basic. Once secreted, FGF-BP-1 can bind FGFs in a reversible manner to mobilize them from inactive storage on heparan sulfate proteoglycans in the extracellular matrix, and deliver them to high affinity receptors on the cell surface where they can exert biological function, all the while protecting against proteolytic degradation. Expressed within the squamous epithelium, FGF-BP-1 functions synergistically with FGFs as a mitogen for keratinocytes and an antagonist for angiogenesis under normal physiological conditions and instances of tissue repair, while also acting as an angiogenic switch for the malignant progression of epithelial cells. First discovered at elevated levels within A431 human epidermoid carcinoma cells, FGF-BP-1 is also expressed at elevated levels in many squamous cell carcinomas and tumors where it has been shown to be a rate-determining factor, interacting with the heparan sulfate proteoglycan perlecan to potentiate neovascularization of tumor masses.		
Research Areas:	AIDS/HIV, Angiogenesis/Cardiovascular, Cancer, Hypertension, Wound Healing		
AA Sequence:	MKKKVKNGLH SKVVSEQKDT LGNTQIKQKS RPGNKGKFVT KDQANCRWAA TEQEEGISLK VECTQLDHEF SCVFAGNPTS CLKLKDERVY WKQVARNLRS QKDICRYSKT AVKTRVCRKD FPESLKLVS STLFGNTKPR KEKTEMSPRE HIKGKETTPS SLAVTQTMAT KAPECVEDPD MANQRKTALE FCGETWSSLC TFFLSIVQDT SC		
Estimated pI:	9.67	Accession #:	Q14512
NCBI Gene ID:	9982		

Product Name	Catalog Number	MW	AA
Recombinant Human FGF-BP-1	100-66	23.9 kDa	212

FGFR1a, 2a

Synonyms: **FGFR1a:** Fibroblast Growth Factor Receptor 1 alpha, BFGFR; **FGFR2a:** Fibroblast Growth Factor Receptor 2 alpha, BEK, KGFR

Description: The FGF family plays a central role during prenatal development and postnatal growth, and the regeneration of a variety of tissues, by promoting cellular proliferation and differentiation. The FGF ligands bind to a family of type I transmembrane tyrosine kinase receptors, which leads to dimerization and activation by sequential autophosphorylation of specific tyrosine residues. Four genes encoding structurally related FGF receptors (FGFR-1 to -4) are known. Alternative splicing of the mRNAs generates numerous forms of FGFR-1 to -3. Alternate forms of FGF receptors can exhibit different specificities with respect to ligand binding. For example, the form designated as FGFR1a (IIc) interacts predominantly with FGF-acidic (FGF1) and FGF-basic (FGF2). A frequent splicing event involving FGFR-1 and -2 results in receptors containing all three Ig domains, referred to as the alpha isoform, or only IgII and IgIII, referred to as the beta isoform. Only the alpha isoform has been identified for FGFR-3 and FGFR-4. Additional splicing events for FGFR-1 to -3, involving the C-terminal half of the IgIII domain encoded by two mutually exclusive alternative exons, generate FGF receptors with alternative IgIII domains (IIb and IIc).

Research Areas: Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Wound Healing

AA Sequence:

Human FGFR1a (IIc) Fc: RPSPTLPEQA QPWGAPVEVE SFLVHPGDLL QLRCLRLDDV QSINWLRDGV QLAESNRTRI TGEEVEVQDS
VPADSGLYAC VTSSPSGSDT TYFSVNVS DA LPSSDDDDDD DDSSSEKET DNTKPNPVAP YWTSPEKMEK
KLHAVPAAKT VKFKCPSSGT PNPTLRWLKN SKEFKPDHRI GGYKVRYATW SIIMDSVVP S DKGNYTCIVE
NEYGSINHTY QLDVVERSPH RPILQAGLPA NKTVALGSNV EFMCKVYSDP QPHIQWLKHI EVNGSKIGPD
NLPYVQILKT AGVNTTDKEM EVLHLRNVSF EDAGEYTCLA GNSIGLSHHS AWLTVLEALE ERPAVMTSPL
YLEGGPKSCD KTHTCP PCA PELLGGPSVF LFPPKPKDTL MISRTPEVTC VVDVSHEDP EVKFNWYVDG
VEVHNAKTKP REEQYNSTYR VVSVLTVLHQ DWLNGKEYKC KVSNAKALPAP IEKTISKAKG QPREPQVYTL
PPSRDELTKN QVSLTCLVKG FYPSDIAVEW ESNGQPENNY KTTTPVLDS D GSFFLYSKLT VDKSRWQQGN
VFSCSVMHEA LHNHYTQKSL SLSPGK

Human FGFR2a (IIc) Fc: RPSFSLVEDT TLEPEEPPTK YQISQPEVYV AAPGESLEVR CLLKDAAVIS WTKDGVHLGP NNRTVLIGEY
LQIKGATPRD SGLYACTASR TVDSETWYFM VNVTDAISSG DEDDDTDGAE DFVSENSNNK RPYWTNTEK
MEKRLHAVPA ANTVKFRCPA GGNPMPTMRW LKNGKEFKQE HRIGGYKVRN QHWSLIMESV VPSDKGNYTC
VVENEYGSIN HTYHLDVVER SPHRPILQAG LPANASTVVG GDVEFVCKVY SDAQPHIQWI KHVEKNGSKY
GPDGLPYLKV LKAAGVNTTD KEIEVLYIRN VTFEDAGEYT CLAGNSIGIS FHSAWLTVLP APGREKEITA
SPDYLEGGPK SCDKTHTCP CPAPELLGGP SVFLFPPKPK DTLMISRTPE VTCVVVDVSH EDEPVKFNWY
VDGVEVHNAK TKPREEQYNS TYRVVSVLTV LHQDWLNGKE YKCKVSNKAL PAPIEKTISK AKGQPREPQV
YTLPPSRDEL TKNQVSLTCL VKGFYPSDIA VEWESNGQPE NNYKTTPPVL DSDGSFFLYS KLTVDKSRWQ
QGNVFSCSVM HEALHNHYTQ KSLSLSPGK

Estimated pI: Human FGFR1a (IIc) Fc: 5.42 **Accession #:** Human FGFR1a (IIc) Fc: P11362
Human FGFR2a (IIc) Fc: 5.80 Human FGFR2a (IIc) Fc: P21802

NCBI Gene ID: Human FGFR1a (IIc) Fc: 2260
Human FGFR2a (IIc) Fc: 2263

Product Name	Catalog Number	MW	AA
Recombinant Human FGFR1a (IIc) Fc	160-02	65.2 kDa	586
Recombinant Human FGFR2a (IIc) Fc	160-03	65.6 kDa	589

FGFR3

Synonyms:

Fibroblast Growth Factor Receptor 3 alpha, ACH, CD333, CEK2, JTK4

Description:

The FGF family plays a central role during prenatal development and postnatal growth, and the regeneration of a variety of tissues, by promoting cellular proliferation and differentiation. The FGF ligands bind to a family of type I transmembrane tyrosine kinase receptors, which leads to dimerization and activation by sequential autophosphorylation of specific tyrosine residues. Four genes encoding structurally related FGF receptors (FGFR-1 to -4) are known. Alternative splicing of the mRNAs generates numerous forms of FGFR-1 to -3. Alternate forms of FGF receptors can exhibit different specificities with respect to ligand binding. For example, the form designated as FGFR1a (IIc) interacts predominantly with FGF-acidic (FGF1) and FGF-basic (FGF2). A frequent splicing event involving FGFR-1 and -2 results in receptors containing all three Ig domains, referred to as the alpha isoform, or only IgII and IgIII, referred to as the beta isoform. Only the alpha isoform has been identified for FGFR-3 and FGFR-4. Additional splicing events for FGFR-1 to -3, involving the C-terminal half of the IgIII domain encoded by two mutually exclusive alternative exons, generate FGF receptors with alternative IgIII domains (IIIb and IIIc).

Research Areas:

Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation, Neurobiology, Proliferation, Stem Cells & Differentiation, Wound Healing

AA Sequence:

ESLGTEQRRVV GRAAEVPGPE PGQQEQLVFG SGDAVELSCP PPGGGPMGPT VWVKDGTGLV PSERVLVGPQ
RLQVLNASHE DSGAYSCRQR LTQRVLCHFS VRVTDAPSSG DDEGDEDEAE DTGVDTGAPY WTRPERMDKK
LLAVPAANTV RFRCPAAGNP TPSISWLKNG REFRGEHRIG GIKLRHQQWS LVMESVVPSD RGNVTCVVEN
KFGSIRQTYT LDVLERSPHR PILQAGLPAN QTAVLGSDVE FHCKVYSDAQ PHIQWLKHVE VNGSKVGPDG
TPYVTVLKTA GANTTDKELE VLSLHNVTFE DAGEYTCLAG NSIGFSHSA WLVLPAEEE LVEADEAGSV
YAGGPKSCDK THTCPPCPAP ELLGGPSVFL FPPKPKDTLM ISRTPEVTCV VVDVSHEDPE VKFNWYVDGV
EVHNAKTKPR EEQYNSTYRV VSVLTVLHQD WLNKEYKCK VSNKALPAPI EKTISKAKGQ PREPQVYTLF
PSRDELTKNQ VSLTCLVKGF YPSDIAVEWE SNGQPENNYK TTPPVLDSDG SFFLYSKLTV DKSRWQQGNV
FSCSVMHEAL HNHYTQKSLS LSPGK

Estimated pI:

5.85

Accession #:

P22607

NCBI Gene ID:

2152

Product Name	Catalog Number	MW	AA
Recombinant Human FGFR3 (IIIc) Fc	160-05	128.3 kDa	1170

Flt3-Ligand

Synonyms:	Fms-related tyrosine kinase 3 ligand, Flt3L
Description:	Flt3-Ligand is a growth factor that regulates proliferation of early hematopoietic cells. Flt3-Ligand binds to cells expressing the tyrosine kinase receptor Flt3. Flt3-Ligand, by itself does not stimulate proliferation of early hematopoietic cells, but synergizes with other CSFs and interleukins to induce growth and differentiation. Unlike SCF, Flt3-Ligand exerts no activity on mast cells. Multiple isoforms of Flt3-Ligand have been identified. The predominant biologically active form is anchored to the cell surface as the extracellular domain of a transmembrane protein (209 a.a.). The membrane-bound isoform can be proteolytically cleaved to generate a biologically active soluble isoform.
Research Areas:	Cancer, Immune System, Stem Cells & Differentiation
AA Sequence:	
Human Flt3-Ligand:	TQDCSFQHSP ISSDFAVKIR ELSDYLLQDY PVTVASNLQD EELCGGLWRL VLAQRWMERL KTVAGSKMQG LLERVNTEIH FVTKCAFQPP PSCLRFVQTN ISRLQETSE QLVALKPWIT RQNFSRCLEL QCQPDSSTLP PPWSPRPLEA TAPTA
Murine Flt3-Ligand:	MTPDCYFSHS PISSNFKVKF RELTDHLLKD YPVTVAVNLO DEKHCKALWS LFLAQRWIEQ LKTVAGSKMQ TLLEDVNTEI HFVTSCFQF LPECLRFVQT NISHLKDTCT QLLALKPCI GKACQNFSRC LEVQCQPDSS TLLPPRSPIA LEATELPEPR PRQ
Estimated pI:	Human Flt3-Ligand: 6.13 Murine Flt3-Ligand: 7.35
NCBI Gene ID:	Human Flt3-Ligand: 2322 Murine Flt3-Ligand: 14256
Accession #:	Human Flt3-Ligand: P49771 Murine Flt3-Ligand: P49772

Product Name	Catalog Number	MW	AA
Recombinant Human Flt3-Ligand	300-19	17.6 kDa	155
Animal-Free Recombinant Human Flt3-Ligand	AF-300-19	17.6 kDa	155
PeproGMP® Recombinant Human Flt3-Ligand	GMP300-19	17.6 kDa	155
Recombinant Murine Flt3-Ligand	250-31L	18.6 kDa	163

Follistatin

Synonyms:	FS, Activin-binding protein		
Description:	Follistatin is a secreted protein that binds to ligands of the TGF-β family and regulates their activity by inhibiting their access to signaling receptors. It was originally discovered as an activin antagonist whose activity suppresses expression and secretion of the pituitary hormone FSH (follicle stimulating hormone). In addition to being a natural antagonist, follistatin can inhibit the activity of other TGF-β ligands including BMP-2,-4,-6,-7, Myostatin, GDF-11, and TGF-β1. Follistatin is expressed in the pituitary, ovaries, decidual cells of the endometrium, and in some other tissues.		
Research Areas:	Immune System, Stem Cells & Differentiation		
AA Sequence:	GNCWLRQAKN GRCQVLYKTE LSKEECCSTG RLSTSWTEED VNDNTLFKWM IFNGGAPNCI PCKETCENV CGPGKKCRMN KKNKPRCVCA PDCSNITWKG PVCGLDGKTY RNECALLKAR CKEQPELEVQ YQGRCKKTCR DVFCPGSSTC VVDQTNNAVC VTCNRICPEP ASSEQYLCGN DGVTYSSACH LRKATCLLGR SIGLAYEGKC IKAKSCEDIQ CTGGKKCLWD FKVGRGRCSL CDELCPSKSKS DEPVCCASDNA TYASECAMKE AACSSGVLL VKHSGSCN		
Estimated pI:	9.10	Accession #: P19883	
NCBI Gene ID:	10468		

Product Name	Catalog Number	MW	AA
Recombinant Human Follistatin	120-13	31.5 kDa	288

Fractalkine (CX3CL1)

Synonyms:	Neurotactin, FKN
Description:	Fractalkine is a CX3CL chemokine that signals through the CX3CR1 receptor. Fractalkine has been shown to chemoattract monocytes, microglia cells and NK cells. Fractalkine is, at this time, the only CXC3C chemokine that contains three amino acid residues between the first and second cysteine residues of the chemokine domain. The Fractalkine gene encodes for a 397 amino acid precursor protein containing a 24 amino acid signal sequence, a chemokine domain, and a “mucin-like stalk” sequence, which is followed by the transmembrane domain containing approximately 20 amino acids, and a C-terminal cytoplasmic domain. The extracellular chemokine domain contains 76 amino acid residues, including the four conserved cysteine residues found in other chemokines.
Research Areas:	AIDS/HIV, Angiogenesis/Cardiovascular, Apoptosis, Cancer, Chemotaxis, Immune System, Inflammation, Neurobiology, Wound Healing
AA Sequence:	
Human Fractalkine:	QHHGVTKCNI TCSKMTSKIP VALLIHYQQN QASCGKRAII LETRQHRLFC ADPKEQWVKD AMQHLDQRQAA ALTRNG
Rat Fractalkine:	QHLGMTKCNI TCHKMTSPIP VTLIIHYQLN QESCGKRAII LETRQHRHFC ADPKEKWVQD AMKHLDHQTA ALTRNG
Estimated pI:	Human Fractalkine: 10.24 Rat Fractalkine: 9.72
NCBI Gene ID:	Human Fractalkine: 6376 Rat Fractalkine: 89808
Accession #:	Human Fractalkine: P78423 Rat Fractalkine: O55145

Product Name	Catalog Number	MW	AA
Recombinant Human Fractalkine (CX3CL1)	300-31	8.5 kDa	76
Recombinant Rat Fractalkine (CX3CL1)	400-26	8.7 kDa	76

sFRP-1

Synonyms:

Secreted Frizzled Related Protein-1, Secreted Apoptosis Related Protein-2, SARP-2

Description:

Secreted Frizzled Related Proteins (sFRPs) modulate WNT signaling by binding directly to WNT proteins in a manner that affects their receptor binding and signaling capabilities. sFRP-1 is a widely distributed protein that can bind directly to WNT1, WNT2, and possibly other WNT proteins, and generally exerts anti-proliferative effects consistent with activity as a WNT antagonist. It also inhibits apoptosis, and has been found to be down-regulated in many solid tumors, but up-regulated in uterine leiomyomas.

Research Areas:

AIDS/HIV, Angiogenesis/Cardiovascular, Apoptosis, Cancer, Immune System, Stem Cells & Differentiation

AA Sequence (monomer):

SEYDYVSFQS DIGPYQSGRF YTKPPQCVDI PADLRLCHNV GYKKMVLPNL LEHETMAEVK QQASSWVPLL
NKNCHAGTQV FLCSLFAPVC LDRPIYPCRW LCEAVRDSCE PVMQFFGFYW PEMLKCDKFP EGDVCIAMTP
PNATEASKPQ GTTVCPPCDN ELKSEAIIEH LCASEFALRM KIKEVKKENG DKKIVPKKKK PLKLGPIKKK
DLKKLVLYLK NGADCPCHQL DNLSHHFLIM GRKVKSQYLL TAIHKWDKKN KEFKNFMKKM KNHECPTFQS
VFK

Estimated pI:

9.40

Accession #:

Q8N474

NCBI Gene ID:

6422

Product Name	Catalog Number	MW	AA
Recombinant Human sFRP-1	120-29	32.5 kDa	283

sFRP-4

Synonyms:

Secreted frizzled-related protein 4, DDC-4 (rat homologue)

Description:

Secreted Frizzled-Related Proteins (sFRPs) are a family of glycosylated Wnt antagonists characterized by a conserved cysteine-rich domain that shares homology with the cysteine-rich, extracellular domain Frizzled proteins use for the binding of Wnt proteins and receptors. Lacking the transmembrane and intracellular domains of the Frizzled proteins, sFRPs function as soluble modulators of the Wnt signaling pathway through the direct binding of Wnt proteins to this cysteine-rich domain, and the resultant inhibition of Wnt receptor binding and signaling capabilities. sFRP-4 is widely distributed in a variety of embryonic and adult tissues where it can function as a circulating antiangiogenic factor, a potent proapoptotic factor, an inhibitor of insulin secretion, and a suppressor of both tumor growth and metastatic potential through disruption of the Wnt signaling pathway. Research has demonstrated the existence of a direct correlation between the downregulation and/or absence of circulating sFRP-4 and the progression of several cancer types, including ovarian, endometrial, prostate and lung. Upregulation of circulating sFRP-4 has been linked to the deterioration of glucose metabolism in the case of type 2 diabetes, as well as the suppression of the keratinocyte hyperproliferation and epidermal hyperlasia that are definitive of psoriasis.

Research Areas:

Angiogenesis/Cardiovascular, Apoptosis, Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Proliferation

AA Sequence:

VRGAPCEAVR IPMCRHMPWN ITRMPNHLHH STQENAILAI EQYEELVDVN CSAVLRFFLC AMYAPICTLE
FLHDPIKPCK SVCQRARDDC EPLMKMYNHS WPESLACDEL PVYDRGVCIS PEAIVTDLPE DVKWIDITPD
MMVQERPLDV DCKRLSPDRC KCKKVKPTLA TYLSKNYSYV IHAKIKAVQR SGCNEVTTVV DVKEIFKSSS
PIPRTQVPLI TNSSCQCPHI LPHQDVLIMC YEWRSRMMLL ENCLVEKWRD QLSKRSIQWE ERLQEQRRTV
QDKKKTAGRT SRSNPPKPKG KPPAPKPASP KKNIKTRSAQ KRTNPKRV

Estimated pI:

9.42

Accession #:

Q6FHJ7

NCBI Gene ID:

6424

Product Name	Catalog Number	MW	AA
Recombinant Human sFRP-4	120-50	37.8 kDa	328

FSTL1

Synonyms:

Follistatin-like protein 1, FSL1, Follistatin-related protein 1, FRP, OCC1, OCC-1, TGF-β1-stimulated clone 36, TSC-36

Description:

Follistatin-like protein 1 (FSTL1) is a widely-expressed, extracellular glycoprotein that is homologously grouped into the osteonectin (BM-40/SPARC) family of secreted proteins based on its possession of both a follistatin-like and extracellular calcium-binding domain. Initially identified as a TGF-β-inducible protein in a cloned mouse osteoblast cell line, FSTL1 has since been implicated in an array of cell-type-specific functions, such as the regulation of proliferation, differentiation, apoptosis and migration, as well as a number of biological processes, including embryonic development, inflammatory response, angiogenesis, tumorigenesis, and immune disease pathogenesis. Highly conserved across mammalian species and widely expressed in human tissues, FSTL1 can be upregulated through signaling mediators of the innate immune system, such as TLR4 agonists and the arthritogenic cytokine IL-1β via NFκB pathways, to stimulate the expression and secretion of pro-inflammatory cytokines, including TNF-α, IL-1β, IL-6 and IL-8. While cells of mesenchymal lineage are capable of FSTL1 production, FSTL1 expression is notably absent from cells of hematopoietic lineage under normal physiological conditions. Macrophages and monocytes are, however, capable of taking up FSTL1 at sites of inflammation where FSTL1 stimulation can cause the expression of caspase-1 and its resultant enzymatic cleavage of active IL-1β from pro-IL-1β. Whereas the overexpression of FSTL1 has been noted as a substantial contributor to the progression of immune diseases like rheumatoid arthritis (RA) and osteoarthritis (OA), diminished FSTL1 serum levels have been identified as playing a significant part in both ovarian and endometrial carcinogenesis, where it directly affects cell proliferation, migration and invasion.

Research Areas:

Apoptosis, Bone/Skeletal/Cartilage, Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Proliferation, Wound Healing

AA Sequence:

EEELRSKSKI CANVFCGAGR ECAVTEKGEP TCLCIEQCKP HKRPVCGSNG KTYLNHCELH RDACTLGSKI
QVDYDGHCKE KKSVPSPASP VVCYQSNRDE LRRRIIQWLE AEIIPDGWFS KGSNYSEILD KYFKNFDNGD
SR LDSSEFLK FVEQNETAIN ITTYPDQENN KLLRGLCVDA LIELSDENAD WKLSFQEFLK CLNPSFNPPE
KKCALEDETY ADGAETEVCDC NRCVCACGNW VCTAMTCDGK NQKGAQTQTE EEMTRYVQEL QKHQETAECT
KRVSTKEI

Estimated pI:

5.37

Accession #:

Q12841

NCBI Gene ID:

11167

Product Name	Catalog Number	MW	AA
Recombinant Human FSTL1	120-51	32.7 kDa	288

Furin

Synonyms:	FUR, PACE, PCSK3																																																												
Description:	Proteases (also called Proteolytic Enzymes, Peptidases, or Proteinases) are enzymes that hydrolyze the amide bonds within proteins or peptides. Most proteases act in a specific manner, hydrolyzing bonds at, or adjacent to specific residues or a specific sequence of residues contained within the substrate protein or peptide. Proteases play an important role in most diseases and biological processes, including prenatal and postnatal development, reproduction, signal transduction, the immune response, various autoimmune and degenerative diseases, and cancer. They are also an important research tool, frequently used in the analysis and production of proteins. Furin is a calcium-dependent serine endoprotease that processes numerous proproteins of different secretory pathways into their mature forms by cleaving at the carboxyl side of the recognition sequence, R-Xaa-(K/R)-R, where Xaa can be any amino acid.																																																												
Research Areas:	Cancer, Neurobiology																																																												
AA Sequence:	DLNVKAAWAQ	GYTGHGIVVS	ILDDGIEKNH	PDLAGNYDPG	ASFDVNDQDP	DPQPRYTQMN	DNRHGTRCAG	EVA	AVANNGV	CGVGVAYNAR	IGGVRMLDGE	VTDAVEARSL	GLNPNHIHIY	SASWGPEDDG	KTVDGPARLA	EEAFFRGVSQ	GRGGLGSIFV	WASGNGGREH	DSCNCDGYTN	SIYTLSSISSA	TQFGNVPWYS	EACSSTLATT	YSSGNQNEKQ	IVTTDLRQKC	TESHTGTSAS	APLAAGIIAL	TLEANKNLTW	RDMQHLVVQT	SKPAHLNAND	WATNGVGRKV	SHSYGYGLLD	AGAMVALAQN	WTTVAPQRKC	IIDILTEPKD	IGKRLEVRKT	VTACLGEPNH	ITRLEHAQAR	LTLSYNRRGD	LAIHLVSPMG	TRSTLLAARP	HDYSADGFND	WAFMTTHSWD	EDPSGEWVLE	IENTSEANNY	GTLTKFTLVL	YGTAPEGLPV	PPESGCKTL	TSSQACVVCE	EGFSLHQKSC	VQHCPPGFAP	QVLDTHYTE	NDVETIRASV	CAPCHACSAT	CQGPALTDCL	SCPSHASLDP	VEQTCSRQSQ	SSRESPPQQQ	PRLPPEVEA	GQRLRAGLLP	SHLPEHHHHH	HHH
Estimated pI:	5.64										Accession #: P09958																																																		
NCBI Gene ID:	5045																																																												

Product Name	Catalog Number	MW	AA
Recombinant Human Furin	450-47	63.9 kDa	593

gAcrp30

Synonyms:	APM-1, Adipolean (human), gad, globular domain of Acrp30		
Description:	gAcrp30 is a naturally occurring globular protein obtained by proteolytic processing of adiponectin. Adiponectin is produced and secreted exclusively by adipocytes, and is a relatively abundant plasma protein, accounting for up to 0.05% of total serum protein. Like Adiponectin, gAcrp30 is capable of decreasing hyperglycemia and reversing insulin resistance. Additionally, gAcrp30 has been shown to be an important factor in promoting fat loss by signaling muscle to absorb and burn Free-Fatty Acids (FFAs). The signaling receptors for adiponectin and gAcrp30 have recently been identified and named AdipoR1 and AdipoR2. AdipoR2 is predominantly expressed in the liver.		
Research Areas:	Diabetes/Weight Regulation		
AA Sequence:			
Human gAcrp30/Adipolean:	MKGEPGEGAY VYRSAFSVGL ETYVTIPNMP IRFTKIFYNQ QNHYDGSTGK FHCNIPGLYY FAYHITVYMK DVKVSLFKKD KAMLFITYDQY QENNVDQASG SVLLHLEVGD QVWLQVYGEG ERNGLYADND NDSTFTGFL YHDTN		
Murine gAcrp30:	MKGEPGEAAY MYRSAFSVGL ETRVTVPNVP IRFTKIFYNQ QNHYDGSTGK FYCNIPGLYY FSYHITVYMK DVKVSLFKKD KAVLFITYDQY QEKNVDQASG SVLLHLEVGD QVWLQVYGDG DHNGLYADNV NDSTFTGFL YHDTN		
Estimated pI:	Human gAcrp30/Adipolean: 5.07 Murine gAcrp30: 5.60	Accession #:	Human gAcrp30/Adipolean: Q15848 Murine gAcrp30: Q60994
NCBI Gene ID:	Human gAcrp30/Adipolean: 9370 Murine gAcrp30: 11450		

Product Name	Catalog Number	MW	AA
Recombinant Human gAcrp30/Adipolean	450-21	16.6 kDa	145
Recombinant Murine gAcrp30	450-27	16.6 kDa	145

gAcrp30/Adipolean Variant

Synonyms:	APM-1 variant		
Description:	The gAcrp30 variant is a naturally occurring globular protein obtained by proteolytic processing of adiponectin. Adiponectin is produced and secreted exclusively by adipocytes, and is a relatively abundant plasma protein, accounting for up to 0.05% of total serum protein. Like Adiponectin, Acrp30 is capable of decreasing hyperglycemia and reversing insulin resistance. Additionally, gAcrp30 has been shown to be an important factor in promoting fat loss by signaling muscle to absorb and burn Free-Fatty Acids (FFAs). The signaling receptors for adiponectin and gAcrp30 have recently been identified and named AdipoR1 and AdipoR2. AdipoR2 is predominantly expressed in the liver.		
Research Areas:	Diabetes/Weight Regulation		
AA Sequence:	PGAEGPRGFP GIQGRKGEPG EGAYVYRSAP SVGLETYVTI PNMPIRFTKI FYNQQNHYDG STGKFHCNIP GLYYFAYHIT VYMKDVKVSL FKKDKAMLFT YDQYQENNVD QASGSVLLHL EVGDQVWLQV YGEGERNGLY ADNDNDSTFT GFLLYHDTN		
Estimated pI:	5.35	Accession #:	Q15848
NCBI Gene ID:	9370		

Product Name	Catalog Number	MW	AA
Recombinant Human gAcrp30/Adipolean Variant	450-20	18.1 kDa	159

Galectin-1

Synonyms:	Galactose-specific lectin-1, Beta-galactoside-binding lectin L-14-I, Galaptin, 14 kDa lectin, S-LAC lectin-1
Description:	Lectins, of either plant or animal origin, are carbohydrate-binding proteins that interact with glycoprotein and glycolipids on the surface of animal cells. The Galectins are lectins that recognize and interact with beta-galactoside moieties. Galectin-1 is an animal lectin that has been shown to interact with CD3, CD4, and CD45. It induces apoptosis of activated T-cells and T-leukemia cell lines, and inhibits the protein phosphatase activity of CD45.
Research Areas:	Apoptosis, Cancer, Immune System, Neurobiology, Stem Cells & Differentiation
AA Sequence:	ACGLVASNLN LKPGECLRVR GEVAPDAKSF VLNLGKDSNN LCLHFNPRFN AHGDANTIVC NSKDGGAWGT EQREAVFPFQ PGSVAEVCIT FDQANLTVKL PDGYEFKFPN RLNLEAINYM AADGDFKIKC VAFD
Estimated pI:	5.14
NCBI Gene ID:	3956
	Accession #: P09382

Product Name	Catalog Number	MW	AA
Recombinant Human Galectin-1	450-39	14.5 kDa	134

Galectin-3

Synonyms:	Galactose-specific lectin-3, IgE-binding protein, MAC2, L-29, CPB-35		
Description:	Lectins, of either plant or animal origin, are carbohydrate-binding proteins that interact with glycoproteins and glycolipids on the surface of animal cells. The Galectins are lectins that recognize and interact with β-galactoside moieties. Galectin-3 regulates a number of biological processes, including embryogenesis, inflammatory responses, cell progression and metastasis. Galectin-3 is normally expressed in epithelia of a variety of tissues, including colon and endometrium, and in various inflammatory cells, including macrophages. Galectin-3 can function intracellularly, controlling the cell cycle and preventing T-cell apoptosis, and also extracellularly, by activating various cells, including monocytes/macrophages, mast cells, neutrophils, and lymphocytes. Expression of Galectin-3 is affected by neoplastic transformation, being up-regulated in certain types of lymphomas, and in thyroid and hepatic carcinomas. Conversely, it is down-regulated in other cancers such as colon, breast, ovarian, and uterine.		
Research Areas:	Apoptosis, Cancer, Immune System, Inflammation, Neurobiology		
AA Sequence:	ADNFSLHDAL SGSGNPNPQG WPGA WGNQPA GAGGYPGASY PGAYPGQAPP GAYPGQAPPG AYHGAPGAYP GAPAPGVYPG PPSGPGAYPS SGQPSAPGAY PATGPYGAPA GPLIVPYNLP LPGGVVPRML ITILGTVKPN ANRIALDFQR GNDVAFHFNP RFNENNRRI VCNTKLDNNW GREERQSVFP FESGKPFKIQ VLVEPDHFKV AVNDAHL LQY NHRVKKLNEI SKLGISGDID LTSASYTMI		
Estimated pI:	8.73	Accession #:	P17931
NCBI Gene ID:	3958		

Product Name	Catalog Number	MW	AA
Recombinant Human Galectin-3	450-38	26.0 kDa	249

GASP-1

Synonyms:

GDF-Associated Serum Protein-1, GASP, KIAA0443, WFIKKNRP

Description:

Growth and differentiation factor-associated serum protein-1 (GASP-1) is a secreted inhibitory TGF-β binding protein that contains multiple protease inhibitor structural domains. It is expressed primarily in the ovary, testis, and brain, and can act as a potent soluble inhibitor of myostatin and GDF-11, but not Activin A. The GASP-1 gene encodes a 571 amino acid protein that contains a 29 amino acid secretion signal sequence, and multiple identifiable structural features, including a WAP domain, a follistatin/Kazal domain, an immunoglobulin domain, two tandem Kunitz domains, and a netrin domain.

Research Areas:

Angiogenesis/Cardiovascular, Bone/Skeletal/Cartilage, Diabetes/Weight Regulation, Stem Cells & Differentiation

AA Sequence:

LPPIRYSHAG ICPNDMNPNL WVDAQSTCRR ECETDQECET YEKCCPNVCG TKSCVAARYM DVKGKKGPVG
MPKEATCDHF MCLQQGSECD IWDGQPVCKC KDRCEKEPSF TCASDGLTTY NRCYMDAEAC SKGITLAVVT
CRYHFTWPNT SPPPPETTMH PTTASPETPE LDMAAPALLN NPVHQSVTMG ETVSFLCDVV GRPRPEITWE
KQLEDRENVV MRPNHVRGNV VVTNIAQLVI YNAQLQDAGI YTCTARNVAG VLRADFPLSV VRGHQAAATS
ESSPNGTAFP AADECLKPPDS EDCGEEQTRW HFDAQANNCL TFTFGHCHRN LNHFEITYEAC MLACMSGPLA
ACSLPALQGP CKAYAPRWAY NSQTGQCQSF VYGGCEGNGN NFESREACEE SCPFPRGNQR CRACKPRQKL
VTSFCRSDFV ILGRVSELTE EPDSGRALVT VDEVLKDEKM GLKFLGQEPL EVTLLHVDWA CPCPNVTVSE
MPLIIMGEVD GGMAMLRPDS FVGASSARRV RKLREVMHKK TCDVLKEFLG LH

Estimated pI:

5.45

Accession #:

Q8TEU8

NCBI Gene ID:

124857

Product Name	Catalog Number	MW	AA
Recombinant Human GASP-1	120-41	59.9 kDa	542

GCP-2 (CXCL6)

Synonyms:	Granulocyte Chemotactic Protein-2, Lix (murine)		
Description:	CXCL6, also known as GCP-2 in humans and LIX in mice, is a connective tissue-derived CXC chemokine that can signal through the CXCR1 and CXCR2 receptors. Human GCP-2, which is cross-reactive with mice cells, selectively attracts neutrophils, and has also been shown to exert anti-angiogenic activity. Murine LIX, also a chemoattractant for neutrophils, signals through the CXCR2 receptor, and is expressed in monocytes, platelets, endothelial cells, and mast cells. The two naturally occurring variants of LIX, LIX 1-78 (GCP-2) and LIX 9-78 (GCP-2), contain 78 and 70 amino acid residues, respectively. LIX contains the four conserved cysteine residues present in CXC chemokines, and also contains the ‘ELR’ motif common to CXC chemokines that binds to the CXCR1 and CXCR2 receptors.		
Research Areas:	Angiogenesis/Cardiovascular, Bone/Skeletal/Cartilage, Chemotaxis, Immune System, Inflammation, Wound Healing		
AA Sequence:			
Human GCP-2 (CXCL6):	VLTELRCTCL RVTLRVNPKT IGKLQVFPAG PQCSKVEVVA SLKNGKQVCL DPEAPFLKKV IQKILDSGNK KN		
Murine LIX (CXCL6) (70 a.a.):	TELRVCVCLTV TPKINPKLIA NLEVIPAGPQ CPTVEVIAKL KNQKEVCLDP EAPVIKKIIQ KILGSDKKKA		
Murine LIX (CXCL6) (92 a.a.):	APSSVIAATE LRCVCLTVTP KINPKLIANL EVIPAGPQCP TVEVIAKLKN QKEVCLDPEA PVIKKIIQKI LGSDKKKAKR NALAVERTAS VQ		
Estimated pI:	Human GCP-2 (CXCL6): 10.17 Murine LIX (CXCL6) (70 a.a.): 9.56 Murine LIX (CXCL6) (92 a.a.): 9.80	Accession #:	Human GCP-2 (CXCL6): P80162 Murine LIX (CXCL6) (70 a.a.): P50228 Murine LIX (CXCL6) (92 a.a.): P50228
NCBI Gene ID:	Human GCP-2 (CXCL6): 6372 Murine LIX (CXCL6) (70 a.a.): 20311 Murine LIX (CXCL6) (92 a.a.): 20311		

Product Name	Catalog Number	MW	AA
Recombinant Human GCP-2 (CXCL6)	300-41	7.9 kDa	72
Recombinant Murine LIX (CXCL6) (70 a.a.)	250-36	7.6 kDa	70
Recombinant Murine LIX (CXCL6) (92 a.a.)	250-17	9.8 kDa	92

G-CSF

Synonyms:	Granulocyte Colony-Stimulating Factor, CSF-3, MGI-1G, GM-CSF beta, pluripoietin		
Description:	G-CSF is a hematopoietic growth factor that stimulates the development of committed progenitor cells to neutrophils and enhances the functional activities of the mature end-cell. It is produced in response to specific stimulation by a variety of cells, including macrophages, fibroblasts, endothelial cells and bone marrow stroma. G-CSF is being used clinically to facilitate hematopoietic recovery after bone marrow transplantation. Human and murine G-CSF are cross-species reactive.		
Research Areas:	AIDS/HIV, Angiogenesis/Cardiovascular, Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Stem Cells & Differentiation		
AA Sequence:			
Human G-CSF:	TPLGPASSLP QSFLKCLEQ VRKIQGDGAA LQEKLCATYK LCHPEELVLL GHSLGIPWAP LSSCPSQALQ LAGCLS QLHS GLFLYQGLLQ ALEGISPELG PTLDTLQLDV ADFATTIWQQ MEELGMAPAL QPTQGAMPAF ASAFQRRAGG VLVASHLQSF LEVSYRVL RH LAQP		
Murine G-CSF:	MVPLVTVSAL PPSLPLPRSF LLKSLEQVRK IQASGSVLE QLCATYKLCH PEELVLLGHS LGIPKASLSG CSSQALQQTQ CLSQLHSG LC LYQGLLQALS GISPALAPTL DLLQLDVANF ATTIWQQMEN LGVAPT VQPT QSAMPAFTSA FQRRAGGVLA ISYLQGFLET ARLALHHLA		
Rat G-CSF:	MKKIPLLTVS SLPPSLPLPR SFLLSLEQV RKIQARNT EL LEQLCATYKL CHPEELVLFG HSLGIPKASL SSCSSQALQQ TKCLS QLHSG LFLYQGLLQA LAGISSELAP TLDMLHLDVD NFATTIWQQM ESLGVAPT VQ PTQSTMPIFT SAFQRRAGGV LVTSYLQSF L ETAHHLHL PRPAQKHFPE SLFISI		
Estimated pI:	Human G-CSF: 5.61 Murine G-CSF: 8.49 Rat G-CSF: 8.87	Accession #: Human G-CSF: P09919 Murine G-CSF: P09920 Rat G-CSF: P97712	
NCBI Gene ID:	Human G-CSF: 1440 Murine G-CSF: 12985 Rat G-CSF: 25610		

Product Name	Catalog Number	MW	AA
Recombinant Human G-CSF	300-23	18.7 kDa	174
Animal-Free Recombinant Human G-CSF	AF-300-23	18.7 kDa	174
Recombinant Murine G-CSF	250-05	19.0 kDa	179
Animal-Free Recombinant Murine G-CSF	AF-250-05	19.0 kDa	179
Recombinant Rat G-CSF	400-37	21.6 kDa	196

GDF-2

Synonyms:

Growth/Differentiation Factor-2, BMP-9

Description:

GDF-2 belongs to the TGF-β cytokine family, whose members play an important role during prenatal development and postnatal growth, and the remodeling and maintenance of a variety of tissues and organs. GDF-2 is expressed mainly in non-parenchymal cells of the liver, but is also found in other various cells and tissues. GDF-2 can signal through the ALK1 receptor, and has been implicated in a number of physiologic events including the regulation of the hepatic reticuloendothelial system, glucose homeostasis, iron homeostasis, and the inhibition of angiogenesis.

Research Areas:

Angiogenesis/Cardiovascular, Immune System, Neurobiology, Stem Cells & Differentiation

AA Sequence (monomer):

SAGAGSHCQK TSLRVNFEDI GWDSWIIAPK EYEAYECKGG CFFPLADDVT PTKHAIVQTL VHLKFPTKVG
KACCVPTKLS PISVLYKDDM GVPTLKYHYE GMSVAECGCR

Estimated pI:

7.41

Accession #:

Q9UK05

NCBI Gene ID:

2658

Product Name	Catalog Number	MW	AA
Recombinant Human GDF-2	120-07	24.1 kDa	220

GDF-3

Synonyms:

Growth/Differentiation Factor-3, Vgr-2, UNQ2222/PRO248

Description:

GDF-3 is a member of the TGF-β superfamily of growth and differentiation factors, and is highly homologous to GDF-9. Unlike most TGF-β family members, GDF-3 and GDF-9 are not disulfide-linked dimers. GDF-3 is expressed in adult bone marrow, spleen, thymus, and adipose tissue. The expression of GDF-3 is upregulated in high-fat-fed wild-type FABP4/aP2 null mice and was associated with obesity, but not with the related hyperglycemia/hyperinsulinemia that characterizes Type 2 diabetes.

Research Areas:

Diabetes/Weight Regulation, Immune System, Stem Cells & Differentiation

AA Sequence (monomer):

AAIPVPKLSC KNLCHRRQLF INFRDLGWHK WIIAPKGFMA NYCHGECPPS LTISLNSSNY AFMQALMHAV
DPEIPQAVCI PTKLSPISML YQDNNDNVIL RHYEDMVVDE CGCG

Estimated pI:

6.32

Accession #:

Q9NR23

NCBI Gene ID:

9573

Product Name	Catalog Number	MW	AA
Recombinant Human GDF-3	120-22	26.0 kDa	228
Animal-Free Recombinant Human GDF-3	AF-120-22	26.0 kDa	228

GDF-5 (BMP-14/CDMP-1)

Synonyms: Growth/Differentiation Factor-5, Bone Morphogenetic Protein-14, Cartilage-Derived Morphogenetic Protein-1 (CDMP-1)

Description: GDF-5 is expressed in long bones during embryonic development and postnatally in articular cartilage. Mutations in the GDF-5 gene have been implicated in Hunter-Thompson type dwarfism and in Grebe Syndrome, which is characterized by short stature, extra digits, and short and deformed extremities. The mature and functional form of GDF-5 is a homodimer of two 120 amino-acid polypeptide chain (monomers) linked by a single disulfide bond. Each GDF-5 monomer is expressed as the C-terminal part of a precursor polypeptide, which also contains a 27 amino acid signal peptide and a 354 amino acid propeptide. This precursor undergoes intracellular dimerization, and upon secretion it is processed by a furin-type protease.

Research Areas: Bone/Skeletal/Cartilage, Immune System, Stem Cells & Differentiation

AA Sequence (monomer):

Human GDF-5: APLATRQGKR PSKNLKARCS RKALHVNFKD MGWDDWIIAP LEYEAFHCEG LCEFPLRSHL EPTNHAVIQT
LMNSMDPEST PPT**C**VPTRL SPISILFIDS ANNVVYKQYE DMVVESCGCR
**Cysteine-84 (Pink) is used for an inter-chain disulfide bridging*

Murine GDF-5: APLANRQGKR PSKNLKARCS RKALHVNFKD MGWDDWIIAP LEYEAHFHCEG LCEFPLRSHL EPTNHAIVIQT
LMNSMDPEST PPT**C**VPTRL SPISILFIDS ANNVVYKQYE DMVVESCGCR
**Cysteine-84 (Pink) is used for an inter-chain disulfide bridging*

Estimated pI:	Human GDF-5: 6.50	Accession #: Human GDF-5: P43026
	Murine GDF-5: 6.50	Murine GDF-5: P43027

NCBI Gene ID: Human GDF-5: 8200
Murine GDF-5: 14563

Product Name	Catalog Number	MW	AA
Recombinant Human GDF-5 (BMP-14/CDMP-1)	120-01	27.0 kDa	240
Recombinant Murine GDF-5 (BMP-14/CDMP-1)	315-24	27.0 kDa	240

GDF-7

Synonyms:

Growth/Differentiation Factor-7, BMP-12

Description:

GDF-7 belongs to the TGF-β superfamily of growth and differentiation factors. It is expressed selectively by roof plate cells that are located in the developing embryonic central nervous system, and has been shown to influence the neuronal identity of cells within the central nervous system. GDF-7 has also been implicated in the formation, maintenance, and repair of certain cartilage and ligament tissues.

Research Areas:

Bone/Skeletal/Cartilage, Immune System, Neurobiology

AA Sequence (monomer):

TALAGTRTAQ GSGGGAGRGH GRRGRSRCSP KPLHVDFKEL GWDDWIIAPL DYEAYHCEGL CDFPLRSHLE
PTNHAIITL LNSMAPDAAP ASCCVPARLS PISILYIDAA NNVVYKQYED MVVEACGCR

Estimated pI:

6.61

Accession #:

Q7Z4P5

NCBI Gene ID:

151449

Product Name	Catalog Number	MW	AA
Recombinant Human GDF-7	120-37	28.0 kDa	258

GDF-11

Synonyms:

Growth/Differentiation Factor-11, BMP-11

Description:

GDF-11 is a myostatin-homologous protein that acts as an inhibitor of nerve tissue growth. GDF-11 has been shown to suppress neurogenesis through a myostatin-like pathway, which involves the arrest of the progenitor cell cycle in the G1 phase. Similarities between myostatin and GDF-11, which are 90% identical in their amino acid sequence, suggest that the regulatory mechanisms responsible for maintaining proper tissue size during neural and muscular development might be the same.

Research Areas:

Immune System, Stem Cells & Differentiation

AA Sequence (monomer):

NLGLDCDEHS SESRCCRYPL TVDFEAFGWD WIIAPKRYKA NYCSGQCEYM FMQKYPHTHL VQQANPRGSA
GPCCTPTKMS PINMLYFNDK QQIIYGKIPG MVDRCGCS

Estimated pI:

8.63

Accession #:

O95390

NCBI Gene ID:

10220

Product Name	Catalog Number	MW	AA
Recombinant Human/Murine/Rat GDF-11	120-11	25.0 kDa	218

GDF-15/MIC-1

Synonyms:	Growth/Differentiation Factor-15, MIC-1, Macrophage Inhibitory Cytokine 1, Placental TGFβ, Prostate Differentiation Factor (PDF), PLAB, NRG-1		
Description:	GDF-15 belongs to the TGF-β cytokine family, whose members play an important role during prenatal development and postnatal growth, and the remodeling and maintenance of a variety of tissues and organs. GDF-15 is expressed predominantly in the placenta and, to a much lesser extent, in various other tissues. The presence of GDF-15 in amniotic fluid and its elevated levels in the sera of pregnant women suggest GDF-15's involvement in gestation and embryonic development. GDF-15 generally exerts tumor suppressive activities and is one of the predominant factors produced and secreted in response to activation of the p53 pathway. Interestingly, the serum level of GDF-15 is positively correlated with neoplastic progression of several tumor types, including certain colorectal, pancreatic, and prostate cancers.		
Research Areas:	Stem Cells & Differentiation		
AA Sequence (monomer):			
Human GDF-15/MIC-1 (Cell Culture derived):	ARNGDHCPLG PGRCCRLHTV RASLEDLGWA DWVLSPREVQ VTCIGACPS QFRAANMHAQ IKTSLHRLKP DTVPAPCCVP ASYNPMVLIQ KTDGTGVSQT YDDLAKDCH CI		
Human GDF-15/MIC-1 (CHO derived):	ARNGDHCPLG PGRCCRLHTV RASLEDLGWA DWVLSPREVQ VTCIGACPS QFRAANMHAQ IKTSLHRLKP DTVPAPCCVP ASYNPMVLIQ KTDGTGVSQT YDDLAKDCH CI		
Estimated pI:	Human GDF-15/MIC-1 (Cell Culture derived): 8.90 Human GDF-15/MIC-1 (CHO derived): 8.34	Accession #:	Human GDF-15/MIC-1 (Cell Culture derived): Q99988 Human GDF-15/MIC-1 (CHO derived): Q99988
NCBI Gene ID:	Human GDF-15/MIC-1 (Cell Culture derived): 9518 Human GDF-15/MIC-1 (CHO derived): 9518		

Product Name	Catalog Number	MW	AA
Recombinant Human GDF-15/MIC-1 (Cell Culture derived)	120-28	24.6 kDa	224
Recombinant Human GDF-15/MIC-1 (CHO derived)	120-28C	24.6 kDa	224

GDNF

Synonyms:	Glial-Derived Neurotrophic Factor, ATF (Astrocyte-derived Trophic Factor), ATF-1	
Description:	GDNF is a disulfide-linked, homodimeric neurotrophic factor structurally related to Artemin, Neurturin and Persephin. These proteins belong to the cysteine-knot superfamily of growth factors that assume stable dimeric protein structures. GDNF signals through a multicomponent receptor system, composed of a RET and one of the four GFR α (α 1- α 4) receptors. GDNF specifically promotes dopamine uptake and survival, and morphological differentiation of midbrain neurons. Using a Parkinson's disease mouse model, GDNF has been shown to improve conditions such as bradykinesia, rigidity, and postural instability. The functional human GDNF ligand is a disulfide-linked homodimer consisting of two 15 kDa polypeptide chains called monomers. Each monomer contains seven conserved cysteine residues, including Cys-102, which is used for inter-chain disulfide bridging, and others that are involved in the intramolecular ring formation known as the cysteine knot configuration.	
Research Areas:	Angiogenesis/Cardiovascular, Immune System, Neurobiology, Stem Cells & Differentiation	
AA Sequence (monomer):		
Human GDNF:	MSPDKQMAVL PRRERNRQAA AANPENSRGK GRRGQRGKNR GCVLTAIHLN VTDLGLGYET KEELIFRYCS GSCDAAETTY DKILKNLSRN RRLVSDKVGQ AC CRPIAFDD DLSFLDDNLV YHILRKHS AK RCGCI <i>*Cysteine-102 (Pink) is used for an inter-chain disulfide bridging</i>	
Murine GDNF:	MSPDKQAAAL PRRERNRQAA AASPENSRGK GRRGQRGKNR GCVLTAIHLN VTDLGLGYET KEELIFRYCS GSCEAAETMY DKILKNLSRS RRLTSDKVGQ AC CRPVAFDD DLSFLDDNLV YHILRKHS AK RCGCI <i>*Cysteine-102 (Pink) is used for an inter-chain disulfide bridging</i>	
Rat GDNF:	MSPDKQAAAL PRRERNRQAA AASPENSRGK GRRGQRGKNR GCVLTAIHLN VTDLGLGYET KEELIFRYCS GSCEAAETMY DKILKNLSRS RRLTSDKVGQ AC CRPVAFDD DLSFLDDSLV YHILRKHS AK RCGCI <i>*Cysteine-102 (Pink) is used for an inter-chain disulfide bridging</i>	
Estimated pI:	Human GDNF: 10.16 Murine GDNF: 10.16 Rat GDNF: 10.16	Accession #: Human GDNF: P39905 Murine GDNF: P48540 Rat GDNF: Q07731
NCBI Gene ID:	Human GDNF: 2668 Murine GDNF: 14573 Rat GDNF: 254535	

Product Name	Catalog Number	MW	AA
Recombinant Human GDNF	450-10	30.4 kDa	270
Animal-Free Recombinant Human GDNF	AF-450-10	30.4 kDa	270
Recombinant Murine GDNF	450-44	30.2 kDa	270
Animal-Free Recombinant Murine GDNF	AF-450-44	30.2 kDa	270
Recombinant Rat GDNF	450-51	30.0 kDa	270
Animal-Free Recombinant Rat GDNF	AF-450-51	30.0 kDa	270

GLP-1

Synonyms:	Glucagon-Like Peptide 1		
Description:	GLP-1 is a proglucagon-derived peptide hormone secreted primarily by intestinal L cells during feeding. Its major physiological function is the stimulation of pancreatic β cells to release appropriate amounts of insulin after glucose absorption. Other biological actions exhibited by GLP-1 include the suppression of plasma glucagon levels, inhibition of gastric motility, and promotion of satiety. The secretion of GLP-1 from intestinal L cells is stimulated by nutrients, hormones, and neural inputs. On the other hand, insulin has been reported to inhibit GLP-1 release, indicating that a feedback loop mechanism regulates GLP-1 secretion. In addition to being the precursor of GLP-1, proglucagon, whose primary structure is highly conserved in mammalian species, is also the precursor for other members of the glucagon family of peptide hormones, including glicentin-related pancreatic peptide (GRPP), glucagons, and GLP-2.		
Research Areas:	Diabetes/Weight Regulation, Wound Healing		
AA Sequence:	HAEGTFTSDV SSYLEGQAAK EFIGAWLVKGR G		
Estimated pI:	5.43	Accession #:	P01275
NCBI Gene ID:	2641		

Product Name	Catalog Number	MW	AA
Recombinant Human GLP-1	130-08	3.3 kDa	31

Glu-C

Synonyms:	V8 Protease		
Description:	Proteases (also called Proteolytic Enzymes, Peptidases, or Proteinases) are enzymes that hydrolyze the amide bonds within proteins or peptides. Most proteases act in a specific manner, hydrolyzing bonds at, or adjacent to, specific residues, or a specific sequence of residues contained within the substrate protein or peptide. Proteases play an important role in most diseases and biological processes, including prenatal and postnatal development, reproduction, signal transduction, immune response, various autoimmune and degenerative diseases, and cancer. They are also an important research tool, as they are frequently used in the analysis and production of proteins. Glu-C cleaves at the Carboxyl side of E (can also cleave D under certain conditions).		
Research Areas:	Cancer, Immune System		
AA Sequence:	LPNNDRHQIT DTTNGHYAPV TYIQVEAPTG TFIASGVVVG KDTLLTNKHV VDATHGDPHA LKAFFPSAINQ DNYPNGGFTA EQITKYSSEG DLAIVKFSPN EQNKHIGEVV KPATMSNNAE TQVNQNITVT GYPGDKPVAT MWESK GKITY LKGEAMQYDL STTGNGSGSP VFNEKNEVIG IHWGGVPNEF NGAVFINENV RNFLKQNIED IHFANDDQPN NPDNPDNPNN PDNPNNPDEP NNPDPNPNNPD NPDNGDNNNS DNPDA A		
Estimated pI:	4.26	Accession #:	Q2FZL2
NCBI Gene ID:	3920389		

Product Name	Catalog Number	MW	AA
Recombinant Staphylococcus Glu-C	450-46	28.8 kDa	266

GM-CSF

Synonyms:	Granulocyte-Macrophage Colony-Stimulating Factor, CSF-2, MGI-1GM, Pluripoietin-α		
Description:	GM-CSF is a hematopoietic growth factor that stimulates the development of neutrophils and macrophages, and promotes the proliferation and development of early erythroid megakaryocytic and eosinophilic progenitor cells. It is produced in endothelial cells, monocytes, fibroblasts and T lymphocytes. GM-CSF inhibits neutrophil migration and enhances the functional activity of the mature end-cells. The human and murine molecules are species-specific and exhibit no cross-species reactivity.		
Research Areas:	Cancer, Immune System, Inflammation, Stem Cells & Differentiation, Wound Healing		
AA Sequence:			
Human GM-CSF:	MAPARSPSPS TQPWEHVNAI QEARRLLNLS RDTAAEMNET VEVISEMFDL QEPTCLQTRL ELYKQGLRGS LTKLKGPLTM MASHYKQHCP PTPETSCATQ IITFESFKEN LKDFLLVIPF DCWEPVQE		
Murine GM-CSF:	MAPTRSPITV TRPWKHVEAI KEALNLLDDM PVTLNEEVEV VSNEFSFKKL TCVQTRLKIF EQGLRGNFTK LKGALNMTAS YYQTYCPPTP ETDCEQVTT YADFIDSLKT FLTDIPFECK KPVQK		
Rat GM-CSF:	MAPTRSPNPV TRPWKHVDAI KEALSLNDM RALENEKNED VDIISNEFSI QRPTCVQTRL KLYKQGLRGN LTKLNGALTM IASHYQTNCP PTPETDCEIE VTTFEDFIKN LKGFLFDIPF DCWKFPVQK		
Estimated pI:	Human GM-CSF: 4.99 Murine GM-CSF: 5.76 Rat GM-CSF: 8.31	Accession #: Human GM-CSF: P04141 Murine GM-CSF: P01587 Rat GM-CSF: P48750	
NCBI Gene ID:	Human GM-CSF: 1437 Murine GM-CSF: 12981 Rat GM-CSF: 116630		

Product Name	Catalog Number	MW	AA
Recombinant Human GM-CSF	300-03	14.6 kDa	128
Animal-Free Recombinant Human GM-CSF	AF-300-03	14.6 kDa	128
Recombinant Murine GM-CSF	315-03	14.2 kDa	125
Animal-Free Recombinant Murine GM-CSF	AF-315-03	14.2 kDa	125
Recombinant Rat GM-CSF	400-23	14.5 kDa	128
Animal-Free Recombinant Rat GM-CSF	AF-400-23	14.5 kDa	128

GMF-β

Synonyms:

Glia Maturation Factor beta, GMFB

Description:

GMF-β is a brain-specific protein that belongs to the actin-binding proteins ADF structural family. GMF-β appears to play a role in the differentiation, maintenance, and regeneration of the nervous system. It also supports the progression of certain auto-immune diseases, possibly through its ability to induce the production and secretion of various pro-inflammatory cytokines.

Research Areas:

Neurobiology, Stem Cells & Differentiation

AA Sequence:

SESLVVDVA EDLVEKLRKF RFRKETNNA IIMKIDKDKR LVVLDEELEG ISPDELKDEL PERQPRFIVY
SYKYQHDDGR VSYPLCFIFS SPVGCKPEQQ MMYAGSKNKL VQTAELTKVF EIRNTEDLTE EWLREKLGFF
H

Estimated pI:

5.01

Accession #:

P60983

NCBI Gene ID:

2764

Product Name	Catalog Number	MW	AA
Recombinant Human GMF-β	450-37	16.5 kDa	141

GPR15L

Synonyms: Antimicrobial peptide-57, AP-57, Colon-derived SUSD2 binding factor, CSBF, UNQ1833/PRO3446

Description: GPR15L is a newly identified ligand for GPR15, a member of the G protein-coupled receptor (GPCR) family. Upon ligation, GPR15L acts as a potent chemoattractant for GPR15-expressing T cells and together they mediate lymphocyte recruitment to the large intestine and skin. GPR15L is constitutively expressed by colon epithelial cells where its expression is minimally altered by intestinal inflammation. Conversely, GPR15L is nearly undetectable in adult epidermis but highly upregulated during wound healing and inflammation, particularly in psoriasis. Significant expression of GPR15L is also seen in additional mucosal epithelial cells, including those of the stomach, esophagus, and urinary tract. While maintaining similar expression patterns and intramolecular disulfide cysteine bridges found in members of the CC chemokine family, GPR15L differs from classic CC and CXC chemokines, whose active sites are found on the N-terminus, in that it relies on its C-terminus for receptor interaction. GPR15L was first identified as an antimicrobial peptide (AMP) due to its broad spectrum of antimicrobial activity, a property shared with many chemokines. GPR15L binds to an additional receptor, SUSD2, and early studies have indicated that both are down-regulated in colon cancer tissue resulting in inhibited colon cancer growth.

Research Areas: Cancer, Chemotaxis, Immune system, Inflammation, Wound Healing

AA Sequence: KRRPAKAWSG RRTRLCCHRV PSPNSTNLKG HHVRLCKPCK LEPEPRLWVV PGALPQV

Estimated pI: 11.37 **Accession #:** Q6UWK7

NCBI Gene ID: 387695

Product Name	Catalog Number	MW	AA
Recombinant Human GPR15L	300-71	6.5 kDa	57

Granzyme B

Synonyms:	Cytotoxic Cell Protease 1 (CCP1)		
Description:	Granzyme B is a cysteine protease found in the cytoplasmic granules of cytolytic T lymphocytes (CTL) and natural killer (NK) cells. Granzyme B is required for the induction of target cell lysis, which occurs as part of cell-mediated immune responses, and can activate apoptosis in target cells by both caspase-dependent and caspase-independent mechanisms. Proteolytic cleavage of substrates by Granzyme B takes place primarily after aspartic acid residues.		
Research Areas:	Apoptosis, Immune System, Inflammation, Transplantation		
AA Sequence:	I IGGHEVKPH SRPYMALLSI KDQQPEAICG GFLIREDFVL TAAHCEGSII NVTLGAHNIK EQEKTQQVIP MVKCIPHPDY NPKTFSNDIM LLKLKSKAKR TRAVRPLNLP RRNVNVKPGD VCYVAGWGRM APMGKYSNTL QEVELTVQKD RECESYFKNR YNKTNQICAG DPKTKRASFR GDSGGPLVCK KVAAGIVSYG YKDGSPPRAF TKVSSFLSWI KKTMKSS		
Estimated pI:	9.93	Accession #:	P04187
NCBI Gene ID:	14939		

Product Name	Catalog Number	MW	AA
Recombinant Murine Granzyme B	140-03	28.9 kDa	227

Gremlin-1

Synonyms:

CKTSF1B1, DAND2, DRM, IHG-2

Description:

Gremlin-1 (isoform-1) belongs to a group of diffusible proteins that bind to ligands of the TGF-β family and regulate their activity by inhibiting their access to signaling receptors. The interplay between TGF-β ligands and their natural antagonists has major biological significance during development processes, in which cellular response can vary considerably depending upon the local concentration of the signaling molecule. Gremlin-1 is highly expressed in the small intestine, fetal brain, and colon; and is expressed at lower levels in the brain, prostate, pancreas, and in skeletal muscle. Gremlin-1 regulates multiple functions in early development by specifically binding to, and inhibiting the function of, BMP-2, -4, and -7. It also plays a role in carcinogenesis and kidney branching morphogenesis.

Research Areas:

Bone/Skeletal/Cartilage, Cancer, Neurobiology, Stem Cells & Differentiation

AA Sequence:

KKKGSQGAIP PDKAQHNDSEQTQSPQQPGSRNRGRGQGRGTAMPGEEVL ESSQEALHVT ERKYLKRDWCKTQPLKQTIH EEGCNSRTIINRFCYGCNSFYIPRHIRKE EGSFQSCSFC KPKKFTTMMV TLNCPQLQPPTKKKRVTRVK QCRCSIDL

Estimated pI:

10.08

Accession #:

O60565

NCBI Gene ID:

26585

Product Name	Catalog Number	MW	AA
Recombinant Human Gremlin-1	120-42	18.3 kDa	160

Growth Hormone

Synonyms:

Somatotropin, GH, GH-N, Growth Hormone 1, Pituitary growth hormone

Description:

Growth Hormone (GH), also known as somatotropin, is a pleiotropic cytokine of the hematopoietic growth factor superfamily, which encompasses most cytokines, hematopoietic growth factors, and related receptors, and includes the related growth hormone receptor, prolactin, placental lactogens, proliferins, and somatolactin (SST). GH is primarily recognized for its anabolic role in stimulating the growth and differentiation of muscle, bone, and cartilage. A number of other functions, including immunomodulatory actions, are also attributed to GH, due in part to the pervasive distribution of its receptors, and the indirect effects associated with GH-stimulated production of insulin-like growth factors (IGFs). Occurring predominantly in the somatotropes of the anterior pituitary, whereupon it is stored in secretory granules, production of GH has also been noted in many other tissues, including those of the hematopoietic system. The production and pulsatile release of circulating GH is very tightly regulated by both negative and positive feedback regulations of pituitary and hypothalamic hormones, such as Pituitary-specific Positive Transcription Factor 1 (POU1F1), Growth Hormone Releasing Hormone (GHRH), and somatostatin (SRIF). Deficient production of GH is associated with dwarfism and reduction of lean body mass, while overproduction is associated with acromegaly and gigantism, as well as breast tumor growth.

Research Areas:

AIDS/HIV, Bone/Skeletal/Cartilage, Chemotaxis, Immune System, Proliferation, Wound Healing

AA Sequence:

MFPTIPLSRL FDNAMLRAHR LHQLAFDTYQ EFEEAYIPKE QKYSFLQNPQ TSLCFSESIP TPSNREETQQ
KSNLELLRIS LLLIQSWLEP VQFLRSVFAN SLVYGASDSN VYDLLKDLEE GIQTLMGRLE DGSPTGQIF
KQTYSKFDTN SHNDDALLKN YGLLYCFRKD MDKVETFLRI VQCRSVEGSC GF

Estimated pI:

5.10

Accession #:

P01241

NCBI Gene ID:

2688

Product Name	Catalog Number	MW	AA
Recombinant Human Growth Hormone	100-40	22.3 kDa	192
Animal-Free Recombinant Human Growth Hormone	AF-100-40	22.1 kDa	192

GRO-α/MGSA, GRO-β, GRO-γ

Synonyms:	Growth Regulated Protein/Melanoma Growth Stimulatory Activity, KC (murine), CINC (rat) GRO-α: MGSAα, CXCL1, NAP-3, GRO1, KC (murine), CINC (rat); GRO-β: MGSAβ, CXCL2, MIP-2α, GRO2; GRO-γ: MGSAγ, CXCL3, MIP-2β, GRO3			
Description:	All three isoforms of GRO are CXC chemokines that can signal through the CXCR1 or CXCR2 receptors. The GRO proteins chemoattract and activate neutrophils and basophils. GRO/MGSA also stimulates mitogenesis in certain human melanoma cells. The GRO proteins are 7.8-7.9 kDa proteins that contain the four conserved cysteine residues present in CXC chemokines, and also the ‘ELR’ motif common to the CXC chemokines that bind to CXCR1 or CXCR2. The secreted GRO proteins contain 73 amino acid residues (72 a.a. for murine and rat GRO/KC).			
Research Areas:	Angiogenesis/Cardiovascular, Chemotaxis, Immune System, Inflammation, Neurobiology, Wound Healing			
AA Sequence:				
Human GRO-α/MSGa (CXCL1):	ASVATELRQC	CLQTLQGIHP	KNIQSVNVKS	PGPHCAQTEV IATLKNGRKA CLNPASPIVK KII EKMLNSD KSN
Murine KC (CXCL1):	APIANELRCQ	CLQTMAGIHL	KNIQSLKVLP	SGPHCTQTEV IATLKNGREA CLDPEAPLVQ KIVQKMLKGV PK
Rat GRO/KC (CXCL1):	APVANELRCQ	CLQTVAGIHF	KNIQSLKVMP	PGPHCTQTEV IATLKNGREA CLDPEAPMVQ KIVQKMLKGV PK
Human GRO-β (CXCL2):	APLATELRQC	CLQTLQGIHL	KNIQSVKVKS	PGPHCAQTEV IATLKNGQKA CLNPASPMVK KII EKMLKNG KSN
Murine MIP-2 (CXCL2):	AVVASELRQC	CLKTLPRVDF	KNIQSLSVTP	PGPHCAQTEV IATLKGGQKV CLDPEAPLVQ KIIQKILNKG KAN
Rat GRO-β/MIP-2 (CXCL2):	VVVASELRQC	CLTTLPRVDF	KNIQSLTVTP	PGPHCAQTEV IATLKDGHEV CLNPEAPLVQ RIVQKILNKG KAN
Human GRO-γ (CXCL3):	ASVVTELRQC	CLQTLQGIHL	KNIQSVNVRS	PGPHCAQTEV IATLKNGKKA CLNPASPMVQ KII EKILNKG STN
Estimated pI:	Human GRO-α/MSGa (CXCL1): 10.02		Accession #: Human GRO-α/MSGa (CXCL1): P09341	
	Murine KC (CXCL1): 9.68		Murine KC (CXCL1): P12850	
	Rat GRO/KC (CXCL1): 9.68		Rat GRO/KC (CXCL1): P14095	
	Human GRO-β (CXCL2): 10.17		Human GRO-β (CXCL2): P19875	
	Murine MIP-2 (CXCL2): 9.80		Murine MIP-2 (CXCL2): P10889	
	Rat GRO-β/MIP-2 (CXCL2): 9.23		Rat GRO-β/MIP-2 (CXCL2): P30348	
	Human GRO-γ (CXCL3): 10.20		Human GRO-γ (CXCL3): P19876	
NCBI Gene ID:	Human GRO-α/MSGa (CXCL1): 2919			
	Murine KC (CXCL1): 14825			
	Rat GRO/KC (CXCL1): 81503			
	Human GRO-β (CXCL2): 2920			
	Murine MIP-2 (CXCL2): 20310			
	Rat GRO-β/MIP-2 (CXCL2): 114105			
	Human GRO-γ (CXCL3): 2921			

Product Name	Catalog Number	MW	AA
Recombinant Human GRO-α/MSGa (CXCL1)	300-11	7.8 kDa	73
Animal-Free Recombinant Human GRO-α/MSGa (CXCL1)	AF-300-11	7.8 kDa	73
Recombinant Murine KC (CXCL1)	250-11	7.8 kDa	72
Recombinant Rat GRO/KC (CXCL1)	400-10	7.8 kDa	72

GRO-α/MGSA, GRO-β, GRO-γ continued on next page

GRO-α/MGSA, GRO-β, GRO-γ (Continued)

Product Name	Catalog Number	MW	AA
Recombinant Human GRO-β (CXCL2)	300-39	7.9 kDa	73
Recombinant Murine MIP-2 (CXCL2)	250-15	7.8 kDa	73
Recombinant Rat GRO-β/MIP-2 (CXCL2)	400-11	7.9 kDa	73
Recombinant Human GRO-γ (CXCL3)	300-40	7.9 kDa	73

HB-EGF

Synonyms:	Heparin Binding EGF-like growth factor, HBEGF, Diphtheria Toxin Receptor (DTR)		
Description:	HB-EGF is an EGF-related growth factor that signals through the EGF receptor, and stimulates the proliferation of smooth muscle cells (SMC), fibroblasts, epithelial cells, and keratinocytes. HB-EGF is expressed in numerous cell types and tissues, including vascular endothelial cells, and vascular SMC, macrophages, skeletal muscle, keratinocytes, and certain tumor cells. The ability of HB-EGF to specifically bind heparin and heparin sulfate proteoglycans is distinct from other EGF-like molecules, and may be related to the enhanced mitogenic activity, relative to EGF, that HB-EGF exerts on smooth muscle cells. The human HB-EGF gene encodes a 208 amino acid transmembrane protein, which can be proteolytically cleaved to produce soluble HB-EGF.		
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Immune System, Neurobiology, Stem Cells & Differentiation, Wound Healing		
AA Sequence:	DLQEADLDLL RVTLSKPKQA LATPNKEEHG KRKKKGKGLG KKRDPCLRKY KDFCIHGECK YVKELRAPSC ICHPGYHGER CHGLSL		
Estimated pI:	9.74	Accession #:	Q99075
NCBI Gene ID:	1839		

Product Name	Catalog Number	MW	AA
Recombinant Human HB-EGF	100-47	9.7 kDa	86

HCC-1 (CCL14)

Synonyms:	Hemofiltrate CC Chemokine-1, HCC-1/HCC-3, NCC-2		
Description:	HCC-1 is a CC chemokine that signals through the CCR1 receptor and chemoattracts blood monocytes. It is secreted by various tissues, including skeletal muscle, heart, spleen, liver, bone marrow and plasma. Mature HCC-1 is found in four different forms, which are distinguished by differential N-terminal truncation and contain 74, 72, 71, or 66 amino acid residues.		
Research Areas:	Bone/Skeletal/Cartilage, Chemotaxis, Immune System, Wound Healing		
AA Sequence:			
Human HCC-1 (66 a.a.):	GPYHPSECCF TYTTYKIPRQ RIMDYYETNS QCSKPGIVFI TKRGHSVCTN PSDKWVQDYI KDMKEN		
Human HCC-1 (72 a.a.):	TESSSRGPYH PSECCFTYTT YKIPRQRIMD YYETNSQCSK PGIVFITKRG HSVCTNPSDK WVQDYIKDMKEN		
Estimated pI:	Human HCC-1 (66 a.a.): 8.94 Human HCC-1 (72 a.a.): 8.94	Accession #:	Human HCC-1 (66 a.a.): Q16627 Human HCC-1 (72 a.a.): Q16627
NCBI Gene ID:	Human HCC-1 (66 a.a.): 6358 Human HCC-1 (72 a.a.): 6358		

Product Name	Catalog Number	MW	AA
Recombinant Human HCC-1 (CCL14) (66 a.a.)	300-38B	7.8 kDa	66
Recombinant Human HCC-1 (CCL14) (72 a.a.)	300-38	8.4 kDa	72

Heregulinβ-1

Synonyms:	Neuregulin1 (NRG1-β1), Neu differentiation factor (rat), HRG, HRG1-β1, Breast cancer cell differentiation factor p45, ARIA (Acetylcholine Receptor Inducing Activity), glial growth factor
Description:	Neuregulin/Heregulin is a family of structurally related polypeptide growth factors derived from alternatively spliced genes (NRG1, NRG2, NRG3 and NRG4). To date, there are over 14 soluble and transmembrane proteins derived from the NRG1 gene. Proteolytic processing of the extracellular domain of the transmembrane NRG1 isoforms releases soluble growth factors. HRG1-β1 contains an Ig domain and an EGF-like domain; the latter is necessary for direct binding to receptor tyrosine kinases erb3 and erb4. This binding induces erb3 and erb4 heterodimerization with erb2, stimulating intrinsic kinase activity that leads to tyrosine phosphorylation. Although HRG1-β1’s biological effects are still unclear, it has been found to promote motility and invasiveness of breast cancer cells, which may also involve up-regulation of expression and function of the autocrine motility-promoting factor (AMF).
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Cancer, Immune System, Neurobiology, Stem Cells & Differentiation
AA Sequence:	SHLVKCAEKE KTFVCVNGGEC FMVKDLSNPS RYLCKCPNEF TGDRCQNYVM ASFYKHLGIE FMEAE
Estimated pI:	6.09
	Accession #: Q02297
NCBI Gene ID:	3084

Product Name	Catalog Number	MW	AA
Recombinant Human Heregulinβ-1	100-03	7.5 kDa	65
Animal-Free Recombinant Human Heregulinβ-1	AF-100-03	7.5 kDa	65
PeperoGMP® Recombinant Human Heregulinβ-1	GMP100-03	7.5 kDa	65

HGF

Synonyms: Hepatocyte Growth Factor, Scatter Factor (SF), Hepatopoietin (HPTA)

Description: HGF is a potent, mesenchymally-derived mitogen for mature parenchymal hepatocytes, and acts as a growth factor for a broad spectrum of tissues and cell types. HGF signals through a transmembrane tyrosine kinase receptor known as MET. Activities of HGF include the induction of cell proliferation, motility, morphogenesis, inhibition of cell growth, and enhancement of neuron survival. HGF is a crucial mitogen for liver regeneration processes, especially after partial hepatectomy and other liver injuries. Human and murine HGF are cross-reactive. Human HGF is expressed as a linear, polypeptide-precursor glycoprotein containing 697 amino acid residues. Proteolytic processing of this precursor generates the biologically active heterodimeric form of HGF, which consists of two polypeptide chains (α -chain and β -chain) held together by a single disulfide bond resulting in formation of a biologically active heterodimer. The α -chain consists of 463 amino acid residues and four kringle domains. The β -chain consists of 234 amino acid residues.

Research Areas: Angiogenesis/Cardiovascular, Cancer, Immune System, Neurobiology, Stem Cells & Differentiation, Wound Healing

AA Sequence:

Human HGF (Insect derived):

Alpha Chain: QKRRRNTIHE FKSAKTTLI KIDPALKIKT KKVNTADQCA NRCTRNGKLP FTCKAFVFDK ARKQCLWFPF
NSMSSGVKKE FGHEFDLYEN KDIYRNCIIG KGRSYKGTVS ITKSGIKCQP WSSMIPHEHS FLPSSYRGKD
LQENYCRNPR GEEGPPWCFT SNPEVRYEVC DIPQCSEVEC MTCNGESYRG LMDHTESGKI CQRWDHQTPH
RHKFLPERYP DKGFDNYCR NPDPGQPRWC YTLDPHTRWE YCAIKTCADN TMNDTDVPLE TTECIQGQGE
GYRGTVNTIW NGIPCQRWDS QYPHEHDMTP ENFKCKDLRE NYCRNPDGSE SPWCFTTDPN IRVGYCSQIP
NCDMSHGQDC YRGNKNYMG NLSQTRSGLT CSMWDKNMED LHRHIFWEPD ASKLNENYCR NPDDDAHGPW
CYTGNPLIPW DYCPISRCEG DTTPTIVNLD HPVISCAKTK QLR

Beta Chain: VVNGIPTRTN IGWMVSLRYR NKHICGGLI KESWVLTAQ CFPSRDLDY EAWLGIHDVH GRGDEKCKQV
LNVSQLVYGP EGSDLVLMKL ARPAVLDDFV STIDLPNYGC TIPEKTSCSV YGWGYTGlin YDGLLRVAHL
YIMGNEKCSQ HHRGKVTlNE SEICAGAEKI GSGPCEGDY GPlVCEQHkM RMVlGVlVPG RGCAIPNRPg
lFVRVAYYAK WlHKlIlTYK VPQs

Human HGF (HEK293 derived):

Alpha Chain: KRRNTIHEFK KSAKTTLIKI DPALKIKTKK VNTADQCANR CTRNGKLPFT CKAFFVFDKAR KQCLWFPFNS
MSSGVKKEFG HEFDLYENKD YIRNCIIGKG RSYKGTVSIT KSGIKCQPWS SMIPHEHSFL PSSYRGKDLQ
ENYCRNPRGE EGGPPWCFTSN PEVRYEVC DI PQCSEVECMT CNGESYRGLM DHTESGKICQ RWDHQTPHRH
KFLPERYPDK GFDDNYCRNP DGQPRPWCYT LDPHTRWEYC AIKTCADNTM NDTDVPLETT ECIQGQGEgy
RGTVNTIWNIG IPCQRWDSQY PHEHDMTPEN FKCKDLRENY CRNPDGSESP WCFTTDPNIR VGYCSQIPNC
DMSHGQDCYR GNGKNYMGNL SQTRSGLTCS MWDKNMEDLH RHIFWEPDAS KLNENYCRNP DDDAHGPWCY
TGNPLIPWDY CPISRCEGDT TPTIVNLDHP VISCAKTKQL R

Beta Chain: VVNGIPTRTN IGWMVSLRYR NKHICGGLI KESWVLTAQ CFPSRDLDY EAWLGIHDVH GRGDEKCKQV
LNVSQLVYGP EGSDLVLMKL ARPAVLDDFV STIDLPNYGC TIPEKTSCSV YGWGYTGlin YDGLLRVAHL
YIMGNEKCSQ HHRGKVTlNE SEICAGAEKI GSGPCEGDY GPlVCEQHkM RMVlGVlVPG RGCAIPNRPg
lFVRVAYYAK WlHKlIlTYK VPQs

Murine HGF:

Alpha Chain: QKRRNTLHE FKSAKTTLT KEDPLLKIKT KKVNSADECA NRCIRNRGFT FTCKAFVFDK SRKRCYWYFP
NSMSSGVKKG FGHEFDLYEN KDIYRNCIIG KGSYKGTVS ITKSGIKCQP WNSMIPHEHS FLPSSYRGKD
LQENYCRNPR GEEGPPWCFT SNPEVRYEVC DIPQCSEVEC MTCNGESYRG PMDHTESGKT CQRWDQQTTPH
RHKFLPERYP DKGFDNYCR NPDPGKPRWC YTLDPDTPWE YCAIKTCAHS AVNETDVPME TTECIQGQGE
GYRGTSNTIW NGIPCQRWDS QYPHKHDITP ENFKCKDLRE NYCRNPDGAE SPWCFTTDPN IRVGYCSQIP
KCDVSSGQDC YRGNKNYMG NLSKTRSGLT CSMWDKNMED LHRHIFWEPD ASKLNKNYCR NPDDDAHGPW
CYTGNPLIPW DYCPISRCEG DTTPTIVNLD HPVISCAKTK QLR

Beta Chain: VVNGIPTQT VGWMVSLKYR NKHICGGLI KESWVLTAQ CFPARNKDLK DYEAWLGIHD VHERGEEKRK
QILNISQLVY GPEGSDLVLL KLARPAILDN FVSTIDLPSY GCTIPEKTTT SIYGWGYTGlin INADGLLRVA
HLYIMGNEKC SQHHQGVTL NESELGAGAE KIGSGPCEGD YGGPLICEQH KMRMVLGVIV PGRGCAIPNR
PGlFVRVAYY AKWlHKVlLT YKL

HGF continued on next page...

HGF (Continued)

Estimated pI:	Human HGF (Insect derived):	8.91	Accession #:	Human HGF (Insect derived):	P14210
	Human HGF (<i>HEK293</i> derived):	8.91		Human HGF (<i>HEK293</i> derived):	P14210
	Murine HGF:	9.11		Murine HGF:	Q08048
NCBI Gene ID:	Human HGF (Insect derived):	3082			
	Human HGF (<i>HEK293</i> derived):	3082			
	Murine HGF:	15234			

Product Name	Catalog Number	MW	AA
Recombinant Human HGF (Insect derived)	100-39	80.0 kDa	697
Recombinant Human HGF (<i>HEK293</i> derived)	100-39H	79.4 kDa	695
Recombinant Murine HGF	315-23	79.3 kDa	696

HPRG

Synonyms:

Histidine-Proline-Rich Glycoprotein, Histidine-rich glycoprotein (HRG), HRGP, THPH11

Description:

Histidine-proline-rich glycoprotein (HPRG), a member of the Cystatin structural superfamily, is an abundantly secreted multi-domain glycoprotein. Although the physiological function is largely unknown, HPRG potentially regulates physiological processes such as cell adhesion and migration, fibrinolysis, coagulation, complement activation, immune complex clearance and phagocytosis of apoptotic cells. HPRG can exert anti-angiogenic activity by stimulating apoptosis of endothelial cells.

Research Areas:

Angiogenesis/Cardiovascular, Apoptosis, Cancer, Chemotaxis, Immune System, Proliferation

AA Sequence:

VSPTDCSAVE PEA EKALDLI NKRRRDGYLF QLLRIADAH LDRVENTTVYY LVLDVQESDC SVLSRKYWND
CEPPDSRRPS EIVIGQCKVI ATRHSSESQD LRVIDFNCTT SSVSSALANT KDSPVLIDFF EDERYRKQA
NKALEKYKEE NDDFASFRVD RIERVARVRG GEGTGYFVDF SVRNCPRHHF PRHPNVFGFC RADLFYDVEA
LDLESPKNLV INCEVFDPQE HENINGVPPH LGHPFWGGH ERSSTTKPPF KPHGSRDHHH PHKPHEHGPP
PPPDERDHS HGPPLQGPPP LLPMSCSSCQ HATFGTNGAQ RHSHNNNSSD LHPHKHHSHE QHPHGHHPHA
HHPHEHDTHR QHPHGHHPHG HHPHGHHPHG HHPHGHHPHC HDFQDYGPCD PPPHNQGHCC HGHGPPPGHL
RRRGPGKGPR PFHCRQIGSV YRLPPLRKGE VLPLPEANFP SFPLPHHKHP LKPDNQFPFQ SVSESCPGKF
KSGFPQVSMF FTHTFPK

Estimated pI:

7.28

Accession #:

P04196

NCBI Gene ID:

3273

Product Name	Catalog Number	MW	AA
Recombinant Human HPRG	100-60	57.7 kDa	507

HVEM-Fc

Synonyms:	HVEM, TNFSFR14, ATAR, TR2, HveA, CD270							
Description:	HVEM belongs to the TNF Receptor superfamily of transmembrane proteins, and plays a role in the activation of T-cells and other lymphocytes. It is expressed in various cells and tissues, including spleen, thymus, lung, macrophages, and T-cells. HVEM activation induces a signaling cascade that results in the induction of transcription factors NF-κB and AP-1. LIGHT (TNFSF14) and TNF-β (TNFSF1) function as the ligands for HVEM, which can also bind specifically to herpes simplex virus glycoprotein D. Soluble HVEM can act as a “receptor decoy” resulting in inhibition of the activity of the HVEM ligands, LIGHT and TNF-β.							
Research Areas:	Apoptosis, Immune System, Infection							
AA Sequence:	LPSCKEDEYP VGSECCPKCS PGYRVKEACG ELTGTVCEPC PPGTYIAHLN GLSKCLQCQM CDPAMGLRAS RNCSTRNAV CGCSPGHFCI VQGDGHCAAC RAYATSSPGQ RVQKGGTESQ DTLCQNCPPG TFSNGTLEE CQHQTNRSCD KTHTCPPCPA PELLGGPSVF LFPPKPKDTL MISRTPEVTC VVVDVSHEDP EVKFNWYVDG VEVHNAKTKP REEQYNSTYR VVSVLTVLHQ DWLNGKEYKC KVSNAKLPAP IEKTISKAKG QPREPQVYTL PPSRDELTKN QVSLTCLVKG FYPSDIAVEW ESNGQPENNY KTTPPVLDSG GSFFLYSKLT VDKSRWQQGN VFSCSVMHEA LHNHYTQKSL SLSPGK							
Estimated pI:	6.67			Accession #: Q92956				
NCBI Gene ID:	8764							

Product Name	Catalog Number	MW	AA
Recombinant Human HVEM-Fc	310-27	41.4 kDa	376

I-309 (CCL1)

Synonyms:	TCA-3		
Description:	I-309 is a CC chemokine that signals through the CCR8 receptor. It is secreted by T lymphocytes, monocytes and mast cells. I-309 chemoattracts monocytes and Th2 differentiated T-cells, but not neutrophils. Human I-309 is active on murine cells. Unlike some CC chemokines, whose biologically active form in solution is a non-disulfide-linked dimer, the biologically active form of I-309 is monomeric.		
Research Areas:	Chemotaxis, Immune System, Neurobiology, Wound Healing		
AA Sequence:	SKSMQVPFSR CCFSFAEQEI PLRAILCYRN TSSICSNEGL IFKLKRGKEA CALDTVGWVQ RHRKMLRHCP SKRK		
Estimated pI:	11.69	Accession #:	P22362
NCBI Gene ID:	6346		

Product Name	Catalog Number	MW	AA
Recombinant Human I-309 (CCL1)	300-37	8.5 kDa	74

ICAM-1

Synonyms:	Intercellular Adhesion Molecule 1, Major group rhinovirus receptor, CD54 antigen		
Description:	ICAMs are members of the Ig superfamily of calcium-independent transmembrane glycoproteins. ICAM-1 is a ligand for the lymphocyte function-associated antigen (LFA) and Mac-1 integrins, as well as the major human rhinovirus receptor. The primary function of ICAM-1 is to provide adhesion between endothelial cells and leukocytes after stress or injury. The human ICAM-1 gene codes for a 505 amino acid transmembrane glycoprotein containing a 29 amino acid cytoplasmic domain, a 23 amino acid transmembrane domain, and a 453 amino acid extracellular domain.		
Research Areas:	Allergy, Angiogenesis/Cardiovascular, Immune System, Inflammation, Transplantation		
AA Sequence:	QTSVSPSKVI LPRGGSVLVT CSTSCDQPKL LGIETPLPKK ELLLPGNRK VYELSNVQED SQPMCYSNCP DGQSTAKTFL TVYWTPERVE LAPLPSWQPV GKNLTLRCQV EGGAPRANLT VVLLRGEKEL KREPAVGEP EVTTTTLVRR DHHGAFSCR TELDLRPQGL ELFENTSAPY QLQTFVLPAT PPQLVSPRVL EVDTQGTVVC SLDGLFPVSE AQVHLALGDQ RLNPTVTYGN DSFSAKASVS VTAEDEGTQR LTCAVILGNQ SQETLQTVTI YSFPAPNVIL TKPEVSEGTE VTVKCEAHPR AKVTLNGVPA QPLGPRAQLL LKATPEDNGR SFSCSATLEV AGQLIHKNQT RELRVLYGPR LDERDCPGNW TWPENSQQTP MCQAWGNPLP ELKCLKDGTf PLPIGESVTV TRDLEGTyLC RARSTQGEVT RKVTNVVLSP RYE		
Estimated pI:	5.65	Accession #:	P05362
NCBI Gene ID:	3383		

Product Name	Catalog Number	MW	AA
Recombinant Human ICAM-1	150-05	49.5 kDa	453

ICOS

Synonyms: Inducible T-cell costimulator, CD278, Activation-inducible lymphocyte immunomediatory molecule (AILIM), CRP-1, CVID1

Description: Inducible T-cell costimulator (ICOS) is a T-cell-specific, surface receptor of the immunoglobulin superfamily that binds inducible costimulatory ligand (ICOSL), alternatively referred to as B7-H2, to play a critical role in the development and function of regulatory T-cells (Tregs). ICOS joins CD28, CTLA-4 and PD-1 as a member of the growing CD28/CTLA-4 family of costimulatory immunoreceptors that function synergistically with members of the B7 family of transmembrane ligands, including B7-1, B7-2, B7-H1 (PD-L1), B7-H2 and PD-L2, to constitute crucial costimulatory pathways for T-cell and B-cell regulatory responses. As the main receptor of B7-H2, ICOS can have both negative and positive influence over immune response, including the direct downregulation of B7-H2, and is critically involved in the immunosuppression of tumor-associated memory CD4+ T-cells. Interaction between ICOS and B7-H2 on the surface of antigen presenting cells potentiates costimulatory signals responsible for enhancing basic T-cell response to foreign antigens, namely the augmentation of T-cell proliferation, the upregulation of molecules responsible for mediating intercellular interaction, and the secretion of cytokines such as IL-4, IL-10 and IL-21. The significant involvement of ICOS and B7-H2 interaction within an array of immunological responses, such as those of Th1, Th2 and Th17 cells, means that the blockade of this interaction has been linked to a number of autoimmune diseases, including rheumatoid arthritis (RA), inflammatory bowel disease (IBD), type 1 diabetes, and graft versus host disease (GVHD). Unlike CD28, which is constitutively expressed on the surface of T-cells where it has restricted interaction with B7-H2, ICOS is expressed at low levels on naive T-cells and is upregulated on activated T-cells and regulatory T-cells (Tregs) after TCR ligation and CD28 stimulation.

Research Areas: Allergy, Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Proliferation, Transplantation

AA Sequence (monomer): EINGSANYEM FIFHNGGVQI LCKYPDIVQQ FKMQLLKGGQ ILCDLTKTKG SGNTVSIKSL KFCHSQLSNN SVSFFLYNLD HSHANYFCN LSIFDPPPFK VTLTGGYLHI YESQLCCQLK GGPKSCDKTH TCPPCPAPEL LGGPSVFLFP PKPKDTLMIS RTPEVTCVVV DVSHEDPEVK FNWYVDGVEV HNAKTKPREE QYNSTYRVVS VLTVLHQDWL NGKEYKCKVS NKALPAPIEK TISKAKQPR EPQVYTLPPS RDELTKNQVS LTCLVKGFYP SDIAVEWESN GQPENNYKTT PPVLDSDGSF FLYSKLTVDK SRWQQGNVFS CSVMHEALHN HYTKQSLSLS PGK

Estimated pI: 8.77 **Accession #:** Q9Y6W8

NCBI Gene ID: 29851

Product Name	Catalog Number	MW	AA
Recombinant Human ICOS Fc	310-39	79.4 kDa	706

IFN-α/IFN-β

Synonyms:	IFN-α: Leukocyte Interferon, IFNA2, B cell Interferon, Type I Interferon; IFN-β: Fibroblast Interferon, IFNB1, Type I Interferon		
Description:	Proteins of this family play an important role in inducing non-specific resistance against a broad range of viral infections. They also affect cell proliferation and modulate immune responses. Produced by peripheral blood leukocytes and lymphoblastoid cells, IFN-α is an acid-stable molecule that signals through IFN-α/βR, which is also used by IFN-β. Both IFNs have similar anti-viral activity and regulate expression of MHC class I antigens. IFN-α contains four highly conserved cysteine residues that form two disulfide bonds, one of which is necessary for biological activity.		
Research Areas:	AIDS/HIV, Cancer, Immune System, Neurobiology		
AA Sequence:			
Human IFN-α:	CDLPQTHSLG SRRTLMLLAQ MRKISLFSCL KDRHDFGFPO EEFGNQFQKA ETIPVLHEMI QQIFNLFSTK DSSAAWDETL LDKFYTELYQ QLNDLEACVI QGVGVTTETPL MKEDSILAVR KYFQRITLYL KEKKYSPCAW EVVRAEIMRS FSLSTNLQES LRSKE		
Human IFN-β:	MSYNLLGFLQ RSSNFQCQKL LWQLNGRLEY CLKDRMNFDI PEEIKQLQQF QKEDAALTIY EMLQNIFAIF RQDSSSTGWN ETIVENLLAN VYHQINHLKT VLEEKLEKED FTRGKLMSSL HLKRYYGRIL HYLKAKEYSH CAWTIVRVEI LRNFYFINRL TGYLRN		
Estimated pI:	Human IFN-α: 5.92 Human IFN-β: 9.16	Accession #: Human IFN-α: P01563 Human IFN-β: P01574	
NCBI Gene ID:	Human IFN-α: 3440 Human IFN-β: 3456		

Product Name	Catalog Number	MW	AA
Recombinant Human IFN-α*	300-02A	19.2 kDa	165
Recombinant Human IFN-β	300-02BC	20.0 kDa	166
Animal-Free Recombinant Human IFN-β	AF-300-02B	20.0 kDa	166

*Not Available in the United States

IFN- γ

Synonyms:	Immune Interferon, Type II interferon, T-cell interferon, MAF		
Description:	IFN- γ is an acid-labile interferon produced by CD4 and CD8 T lymphocytes as well as activated NK cells. IFN- γ receptors are present in most immune cells, which respond to IFN- γ signaling by increasing the surface expression of class I MHC proteins. This promotes the presentation of antigen to T-helper (CD4+) cells. IFN- γ signaling in antigen-presenting cells, and antigen-recognizing B and T lymphocytes, regulates the antigen-specific phases of the immune response. Additionally, IFN- γ stimulates a number of lymphoid cell functions, including the anti-microbial and anti-tumor responses of macrophages, NK cells, and neutrophils. Human IFN- γ is species-specific and is biologically active only in human and primate cells.		
Research Areas:	AIDS/HIV, Allergy, Angiogenesis/Cardiovascular, Cancer, Diabetes/Weight Regulation, Immune System, Neurobiology, Stem Cells & Differentiation, Transplantation		
AA Sequence:			
Human IFN- γ :	MQDPYVKEAE NLKKYFNAGH SDVADNGTLF LGILKNWKEE SDRKIMQSQI VSFYFKLFKN FKDDQSIQKS VETIKEDMNV KFFNSNKKKR DDFEKLTNYS VTDLNVQRKA IHELIQVMAE LSPAAKTGKR KRSQMLFQGR RASQ		
Murine IFN- γ :	MHGTVIESLE SLNNYFNSSG IDVEEKSLFL DIWRNWQKDG DMKILQSQII SFYLRLFEVL KDNQAISNNI SVIESHLITT FFSNSKAKKD AFMSIAKFEV NNPQVQRQAF NELIRVVHQL LPESSLRKRK RSRC		
Rat IFN- γ :	MQGTLIESLE SLKNYFNSSS MDAMEGKSL LDIWRNWQKD GNTKILESQI ISFYLRLEFEV LKDNQAISNN ISVIESHLIT NFFSNSKAKK DAFMSIAKFE VNNPQIQHKA VNELIRVIHQ LSPESSLRKR KRSRC		
Estimated pI:	Human IFN- γ : 9.46 Murine IFN- γ : 9.16 Rat IFN- γ : 9.44	Accession #:	Human IFN- γ : P01579.1 Murine IFN- γ : P01580 Rat IFN- γ : P01581
NCBI Gene ID:	Human IFN- γ : 3458 Murine IFN- γ : 15978 Rat IFN- γ : 25712		

Product Name	Catalog Number	MW	AA
Recombinant Human IFN- γ	300-02	16.8 kDa	144
Animal-Free Recombinant Human IFN- γ	AF-300-02	16.8 kDa	144
Recombinant Murine IFN- γ	315-05	15.6 kDa	134
Animal-Free Recombinant Murine IFN- γ	AF-315-05	15.6 kDa	134
Recombinant Rat IFN- γ	400-20	15.6 kDa	135

IFN-λ1, λ2

Synonyms:	IFN-λ1: IL-29 (Human); IFN-λ2: IL-28A		
Description:	IFN λ1, 2, and 3 (also known as IL-29, IL-28A and IL-28B respectively) are distantly related to the IL-10 family and the interferons. All three IFN-lambdas use a distinct receptor system composed of an IFN-λR1 subunit (also called CRF2-12) and IL-10R2 subunit (also called CRF2-14). Signaling through this receptor system induces antiviral defenses similar to, but distinct from, that of type I interferons.		
Research Areas:	Arthritis, Diabetes/Weight Regulation, Immune System, Infection		
AA Sequence:			
Human IFN-λ1:	PTSKPTTTGK GCHIGRFKSL SPQELASFCK ARDALEESLK LKNWSCSSPV FPGNWDLRLL QVRERPVALE AELALTLKVL EAAAGPALED VLDQPLHTLH HILSQLQACI QPQPTAGPRP RGRLHHWLHR LQEAPKKESA GCLEASVTFN LFRLLTRDLK YVADGNLCLR TSTHPEST		
Human IFN-λ2:	PVARLHGALP DARGCHIAQF KSLSPQELQA FKRAKDALEE SLLLKDCRCH SRLFPRTWDL RQLQVVRERPM ALEAELALTL KVLEATADTD PALVDVLDQP LHTLHHILSQ FRACIQPQPT AGPRTRGR LH HWLYRLQEAP KKESPGCLEA SVTFNLFRL LTRDLNCVASG DLCV		
Murine IFN-λ2:	MDPVPRATRL PVEAKDCHIA QFKSLSPKEL QAFKKAKDAI EKRLLEKDMR CSSHLISR AW DLKQLQVQER PKALQAEVAL TLKVWENMTD SALATILGQP LHTLSHIHSQ LQTCTQLQAT AEPKPPSRRL SRWLHRLQEA QSKETPGCLE DSVTSNLFRL LTRDLKCVAS GDQCV		
Estimated pI:	Human IFN-λ1: 9.52 Human IFN-λ2: 9.36 Murine IFN-λ2: 9.55	Accession #: Human IFN-λ1: Q8IU54 Human IFN-λ2: Q8IZJ0 Murine IFN-λ2: Q4VK74	
NCBI Gene ID:	Human IFN-λ1: 282618 Human IFN-λ2: 282616 Murine IFN-λ2: 330496		

Product Name	Catalog Number	MW	AA
Recombinant Human IFN-λ1	300-02L	19.8 kDa	178
Animal-Free Recombinant Human IFN-λ1	AF-300-02L	19.8 kDa	178
Recombinant Human IFN-λ2	300-02K	19.6 kDa	174
Recombinant Murine IFN-λ2	250-33	19.8 kDa	175

IFN-ω

Synonyms:

IFN alpha II-1, IFNW1

Description:

IFN-ω is a type I interferon that can be induced by virus-infected leukocytes. Members of the type I interferon family, which includes IFN-α, IFN-β, and IFN-ω, signal through the IFNAR-1/IFNAR-2 receptor complex, and exert antiviral and antiproliferative activities. IFN-ω exhibits about 75% sequence homology with IFN-α, and contains two conserved disulfide bonds that are necessary for full biological activity.

Research Areas:

Immune System, Inflammation

AA Sequence:

CDLPQNHGLL SRNTLVLLHQ MRRISPFLCL KDRRDFRFPQ EMVKGSQLQK AHVMSVLHEM LQQIFSLFHT
ERSSAAWNMT LLDQLHTGLH QQLQHLETCL LQVVGEGESA GAISSPALTL RRYFQGIRVY LKEKKYSDCA
WEVVRMEIMK SLFLSTNMQE RLRSKDRDLG SS

Estimated pI:

9.63

Accession #:

P05000

NCBI Gene ID:

3467

Product Name	Catalog Number	MW	AA
Recombinant Human IFN-ω	300-02J	19.9 kDa	172

IGF-I, -I LR3, -II

Synonyms: **IGF-I:** Insulin-like Growth Factor-I, Somatamedin C, IGF-IA; **IGF-I LR3:** Long R3 IGF-I, Insulin-like Growth Factor-I, Somatamedin C, IGF-IA; **IGF-II:** Insulin-like Growth Factor-II, Somatamedin A

Description: The IGFs are mitogenic, polypeptide growth factors that stimulate the proliferation and survival of various cell types, including muscle, bone, and cartilage tissue in vitro. IGFs are predominantly produced by the liver, although a variety of tissues produce the IGFs at distinctive times. The IGFs belong to the Insulin gene family, which also contains insulin and relaxin. The IGFs are similar to insulin by structure and function, but have a much higher growth-promoting activity than insulin. IGF-II expression is influenced by placenta lactogen, while IGF-I expression is regulated by growth hormone. Both IGF-I and IGF-II signal through the tyrosine kinase type I receptor (IGF-IR), but IGF-II can also signal through the IGF-II/Mannose-6-phosphate receptor. Mature IGFs are generated by proteolytic processing of inactive precursor proteins, which contain N-terminal and C-terminal propeptide regions. Mature human IGF-I and IGF-II are globular proteins containing 70 and 67 amino acids, respectively, and contain 3 intra-molecular disulfide bonds.

Research Areas: Angiogenesis/Cardiovascular, Bone/Skeletal/Cartilage, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Wound Healing

AA Sequence:

Human IGF-I: GPETLCGAEL VDALQFVCGD RGFYFNKPTG YGSSSRRAPO TGIVDECCFR SCDLRRLEMY CAPLKPAKSA

Murine IGF-I: GPETLCGAEL VDALQFVCGP RGFYFNKPTG YGSSIRRAPO TGIVDECCFR SCDLRRLEMY CAPLKPTKAA

Human IGF-I LR3: MFPAMPLSSL FVNGPRTLPG AELVDALQFV CGDRGFYFNK PTGYGSSSRP APQTGIVDEC CFRSCDLRRL
EMYCAPLKPA KSA

Human IGF-II: AYRPSETLPG GELVDTLQFV CGDRGFYFSR PASRVSRRSR GIVEECCFRS CDLALLETYC ATPAKSE

Estimated pI:	Human IGF-I:	8.53	Accession #:	Human IGF-I:	P05019
	Murine IGF-I:	9.26		Murine IGF-I:	P05017
	Human IGF-I LR3:	9.64		Human IGF-I LR3:	P05019
	Human IGF-II:	6.55		Human IGF-II:	P01344

NCBI Gene ID:	Human IGF-I:	3479
	Murine IGF-I:	16000
	Human IGF-I LR3:	3479
	Human IGF-II:	3481

Product Name	Catalog Number	MW	AA
Recombinant Human IGF-I	100-11	7.6 kDa	70
Animal-Free Recombinant Human IGF-I	AF-100-11	7.6 kDa	70
Recombinant Murine IGF-I	250-19	7.6 kDa	70
Recombinant Human IGF-I LR3	100-11R3	9.1 kDa	83
Animal-Free Recombinant Human IGF-I LR3	AF-100-11R3	9.1 kDa	83
Recombinant Human IGF-II	100-12	7.5 kDa	67
Animal-Free Recombinant Human IGF-II	AF-100-12	7.5 kDa	67

IGF-BP1

Synonyms: Insulin-like Growth Factor-Binding Protein 1, IBP-1, Placenta Protein 12 (PP12)

Description: IGF-BPs control the distribution, function and activity of IGFs in various cell tissues and body fluids. Currently, there are seven named IGF-BPs that form high-affinity complexes with both IGF-I and IGF-II. IGF-BP1 is a 25.4 kDa, cysteine-rich, secreted protein expressed in the liver, deciduas, kidneys, and in amniotic fluid, where it is the most abundant IGF-BP. Levels of IGF-BP1 in serum are lowest after food consumption. IGF-BP1 binds to both IGF-I and IGF-II with equal affinity. Phosphorylated IGF-BP1 hinders IGF actions, whereas nonphosphorylated IGF-BP1 is stimulatory.

Research Areas: Apoptosis, Cancer, Diabetes/Weight Regulation

AA Sequence: MAPWQCAPCS AEKLALCPPV SASCSEVTRS AGCGCCPMCA LPLGAACGVA TARCARGLSC RALPGEQQPL
HALTRQGAC VQESDASAPH AAEAGSPESP ESTEITEEEL LDNFHLMAPS EEDHSILWDA ISTDYDGSAL
HVTNIKKWKE PCRIELYRVV ESLAKAQETS GEEISKFYLP NCNKNNGFYHS RQCETSMGDG AGLCWCVPYPW
NGKRIPGSPE IRGDPNCOIY FNVON

Estimated pI: 4.92 **Accession #:** P08833

NCBI Gene ID: 3484

Product Name	Catalog Number	MW	AA
Recombinant Human IGF-BP1	350-10	25.4 kDa	235

IGF-BP2

Synonyms:

Insulin-like Growth Factor-Binding Protein 2, IBP-2

Description:

IGF-BPs control the distribution, function and activity of IGFs in various cell tissues and body fluids. Currently, there are seven named IGF-BPs that form high affinity complexes with both IGF-I and IGF-II. IGF-BP2 is a cysteine-rich, secreted protein produced by bone cells, and is most abundant in the brain. IGF-BP2 has been shown to inhibit IGF-II action in human breast and ovarian carcinoma cells.

Research Areas:

Apoptosis, Cancer, Diabetes/Weight Regulation

AA Sequenc:

EVLFRCPPT PERLAACGPP PVAPPAAVAA VAGGARMPCA ELVREPGCGC CSVCARLEGE ACQVYTPTCG
QGLRCYPHPG SELPLQALVM GEGTCEKRRD AEYGASPEQV ADNGDDHSEG GLVENHVDST MNMLGGGGSA
GRKPLKSGMK ELAVFREKVT EQHRQMGKGG KHHLGLEEPK KLRPPPARTP CQQELDQVLE RISTMRLPDE
RGPLEHLYSL HIPNCDKHGL YNLKQCKMSL NGQRGECWCV NPNTGKLIQG APTIRGDPEC HLFYNEQQEA
RGVHTQRMQ

Estimated pI:

6.97

Accession #:

P18065

NCBI Gene ID:

3485

Product Name	Catalog Number	MW	AA
Recombinant Human IGF-BP2	350-06B	31.5 kDa	289

IGF-BP3

Synonyms:

Insulin-like Growth Factor-Binding Protein 3, Growth-hormone-dependent binding protein, IBP-3

Description:

IGF-BP3 is a 30 kDa, cysteine-rich secreted protein. It is the major IGF binding protein present in the plasma of human and animals, and it is also found in α -granules of platelets. In addition to its ability to modulate the activity of IGF-I and IGF-II, IGF-BP3 exerts inhibitory effects on follicle stimulating hormone (FSH) activity. Decreased plasma levels of IGF-BP3 often results in dwarfism, whereas elevated levels of IGF-BP3 may lead to acromegaly. The expression of IGF-BP3 in fibroblasts is stimulated by mitogenic growth factors, such as Bombesin, Vasopressin, PDGF, and EGF.

Research Areas:

Apoptosis, Cancer, Diabetes/Weight Regulation

AA Sequence:

GASSGGLGPV VRCEPCDARA LAQCAPPNAV CAELVREPGC GCCLTCALSE GQPCGIYTER CGSGLRCQPS
PDEARPLQAL LDGRGLCVNA SAVSRLRAYL LPAPPAPGNA SESEEDRSAG EVESPSVSST HRVSDPKFHP
LHSKI I I I I K K GHAKDSQRYK VDYESQSTDT QNFSSSESKRE TEYGPCRREM EDTLNHLKFL NVLSPRGVHI
PNCDDKKG FYK KKQCRPSKGR KRGFCWCVDK YGQPLPGYTT KGKEDVHCYS MQSK

Estimated pI:

9.41

Accession #:

P17936

NCBI Gene ID:

3486

Product Name	Catalog Number	MW	AA
Recombinant Human IGF-BP3	100-08	28.8 kDa	264
Animal-Free Recombinant IGF-BP3	AF-100-08	28.8 kDa	264

IGF-BP4

Synonyms:	Insulin-like Growth Factor-Binding Protein 4, IBP-4, HT29-IGF-BP, colon cancer cell growth inhibitor		
Description:	IGF-BPs control the distribution, function and activity of IGFs in various cell tissues and body fluids. IGF-BP4 is the major IGF-BP produced by osteoblasts, and is found in the epidermis, ovarian follicles, and other tissues. IGF-BP4 inhibits the activity of IGF-I and IGF-II by binding in a manner that results in the formation of complexes with reduced ability to signal through cell surface IGF receptors. IGF-BP4 can inhibit the growth of chick pelvis cartilage and HT29 colon adenocarcinoma cells by blocking the mitogenic actions of IGFs, and has also been shown to reduce colony formation by colorectal cancer cells via an IGF-independent pathway. The biological effects of IGF-BP4 can be regulated by Pregnancy Associated Plasma Protein A (PAPP-A), which reduces IGF-BP4/IGF binding affinity by proteolytically cleaving IGF-BP4. The modulation of IGF-BP4 activity by PAPP-A is an important component in the regulation of ovarian folliculogenesis and in the growth inhibition of responding ovarian cancer cells.		
Research Areas:	Apoptosis, Cancer, Diabetes/Weight Regulation, Immune System, Neurobiology		
AA Sequence:	DEAIHCPPCS EEKLARCRPP VGCEELVREP GCGCCATCAL GLGMPCGVYT PRCGSGLRCY PPRGVEKPLH TLMHGQGVCMLAEIEAIQE SLQPSDKDEG DHPNNSFSPC SAHRRCLQK HFAKIRDRST SGGKMKVNGA PREDARVPVQ GSCQSELHRA LERLAASQSR THEDLYIIFI PNCDRNGNFH PKQCHPALDG QRGKCWCVDR KTGVKLPGGLEPKGELDCHQLADSFRE		
Estimated pI:	6.97	Accession #:	P22692
NCBI Gene ID:	3487		

Product Name	Catalog Number	MW	AA
Recombinant Human IGF-BP4	350-05B	25.7 kDa	237

IGF-BP5

Synonyms:	Insulin-like Growth Factor-Binding Protein 5, IBP-5				
Description:	IGF-BPs control the distribution, function and activity of IGFs in various cell tissues and body fluids. Currently, there are seven named IGF-BPs that form high affinity complexes with both IGF-I and IGF-II. IGF-BP5 is a 28.6 kDa, cysteine-rich, secreted protein produced by vascular smooth muscle cells. It is the major IGF-binding protein present in bone tissue and helps potentiate the action of IGF-I on smooth muscle cells, fibroblasts, and osteoblasts. Data shows that IGFBP-5 acts as a growth inhibitor and pro-apoptotic agent in breast cancer cells. IGFBP-5-over-expressing mice show an increase in neonatal mortality, reduced female fertility, whole-body growth inhibition, and retarded muscle development.				
Research Areas:	Apoptosis, Cancer, Diabetes/Weight Regulation				
AA Sequence:	MLGSFVHCEP CDEKALSMCP PSPLGCELVK EPGCGCCMTC ALAEGQSCGV YTERCAQGLR CLPRQDEEKP LHALLHGRGV CLNEKSYREQ VKIERDSREH EEPTTSEMAE ETYSPKIFRP KHTRISELKA EAVKKDRRKK LTQSKFVGGA ENTAHPRIIS APEMRQESQ GPCRRHMEAS LQELKASPRM VPRAVYLPNC DRKGFYKRKQ CKPSRGRKRG ICWCVDKYGM KLPGMEYVDG DFQCHTFDSS NVS				
Estimated pI:	9.39		Accession #: P24593		
NCBI Gene ID:	3488				

Product Name	Catalog Number	MW	AA
Recombinant Human IGF-BP5	100-05	28.6 kDa	253

IGF-BP6

Synonyms:	Insulin-like Growth Factor-Binding Protein 6, IBP-6		
Description:	IGF-BPs control the distribution, function and activity of IGFs in various cell tissues and body fluids. IGF-BP6, which specifically inhibits IGF-II actions, is produced by bone cells and is the major IGF-BP present in cerebrospinal fluid. IGF-BP6 has been shown to inhibit IGF-II-dependent cancers such as neuroblastoma, colon cancer and rhabdomyosarcoma.		
Research Areas:	Apoptosis, Cancer, Diabetes/Weight Regulation, Neurobiology		
AA Sequence:	RCPGCGQGVQ AGCPGGCVVEE EDGGSPAEGC AEAEGCLRRE GQECGVYTPN CAPGLQCHPP KDDEAPLRAL LLGRGRCLPA RAPAVAEENP KESKPQAGTA RPQDVNRRDQ QRNPGTSTTP SQPNSAGVQD TEMGPCRRHL DSVLQQLQTE VYRGAQTLYV PNCDHRGFYR KRQCRSSQGQ RRGPCWCVDR MGKSLPGSPD GNGSSSCPTG SSG		
Estimated pI:	9.05	Accession #:	P24592
NCBI Gene ID:	3489		

Product Name	Catalog Number	MW	AA
Recombinant Human IGF-BP6	350-07B	22.3 kDa	213

IGF-BP7

Synonyms:	Insulin-like Growth Factor-Binding Protein 7, IBP-7, Mac25, IGF binding protein-related protein-1 (IGFBP-rP1)		
Description:	IGF-BPs control the distribution, function and activity of IGFs in various cell tissues and body fluids. Currently, there are seven named IGF-BPs that form high affinity complexes with both IGF-I and IGF-II. IGF-BP7 is expressed in a wide range of normal human tissues, and it generally shows reduced expression in cancer cell lines of prostate, breast, colon, and lung origin. It plays a role in skeletal myogenesis by binding to IGF in a manner that inhibits IGF-induced differentiation of skeletal myoblasts, without affecting IGF-induced proliferation. Additionally, IGF-BP7 suppresses growth and colony formation of prostate and breast cancer cell lines through an IGF-independent mechanism, which causes a delay in the G1 phase of the cell cycle and increased apoptosis.		
Research Areas:	Apoptosis, Cancer, Diabetes/Weight Regulation		
AA Sequence:	SSSDTCGPCE PASCPLPLPL GCLLGETRDA CGCCPMCARG EGEP CGGGGA GRGYCAPGME CVKSRKRRKG KAGAAAGGPG VSGVCVCKSR YPVC GSDGTT YPSGCQLRAA SQRAESRGEK AITQVSKGTC EQGPSIVTTP KDIWNVTGAQ VYLSCEVIGI PTPVLIWNKV KRGHYGVQRT ELLPGDRDNL AIQTRGGPEK HEVTGWVLVS PLSKEDAGEY ECHASNSQGQ ASASAKITVV DALHEIPVKK GEGAEL		
Estimated pI:	8.92	Accession #:	Q16270
NCBI Gene ID:	3490		

Product Name	Catalog Number	MW	AA
Recombinant Human IGF-BP7	350-09	26.4 kDa	256
Animal-Free Recombinant Human IGF-BP7	AF-350-09	26.4 kDa	256

IL-1α

Synonyms:	Interleukin-1α, Hematopoietin-1, Lymphocyte-Activating Factor (LAF), Endogenous Pyrogen (EP), Leukocyte Endogenous Mediator (LEM), Mononuclear Cell Factor (MCF)		
Description:	IL-1α is a non-secreted, proinflammatory cytokine produced in a variety of cells, including monocytes, tissue macrophages, keratinocytes, and other epithelial cells. Both IL-1α and IL-1β bind to the same receptor and have similar, if not identical, biological properties. These cytokines have a broad range of activities including the stimulation of thymocyte proliferation by inducing IL-2 release, B-cell maturation and proliferation, mitogenic FGF-like activity and the release of prostaglandin and collagenase from synovial cells. However, whereas IL-1β is a secreted cytokine, IL-1α is predominantly a cell-associated cytokine.		
Research Areas:	Allergy, Angiogenesis/Cardiovascular, Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Transplantation, Wound Healing		
AA Sequence:			
Human IL-1α:	SAPFSFLSNV KYNFMRIKY EFILNDALNQ SIIRANDQYL TAAALHNLDE AVKFDMGAYK SSKDDAKITV ILRISKTQLY VTAQDEDQPV LLKEMPEIPK TITGSETNLL FFWETHGTKN YFTSVAHPNL FIATKQDYWV CLAGGPSIT DFQILENQA		
Murine IL-1α:	SAPYTYQSDL RYKLMKLVQR KFVMNDSLNLQ TIYQDVKHY LSTTWLNDLQ QEVKFDMYAY SSGGDDSKYP VTLKISDSQL FVSAQGEDQP VLLKELPETP KLITGSETDL IFFWKSINSK NYFTSAAYPE LIATKEQSR VHLARGLPSM TDFQIS		
Rat IL-1α:	MAPHSFQNNL RYKLIRIVKQ EFIMNDSLNLQ NIYVMDRIH LKAASLNDLQ LEVKFDMYAY SSGGDSKYPV TLKVSNTQLF VSAQGEDKPV LLKEIPETPK LITGSETDLI FFW EKINSK NYFTSAAFPEL LIATKEQSQV HLARGLPSMI DFQIS		
Estimated pI:	Human IL-1α: 4.93 Murine IL-1α: 5.19 Rat IL-1α: 5.88	Accession #:	Human IL-1α: P01583 Murine IL-1α: P01582 Rat IL-1α: P16598
NCBI Gene ID:	Human IL-1α: 3552 Murine IL-1α: 16175 Rat IL-1α: 24493		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-1α	200-01A	18.0 kDa	159
Animal-Free Recombinant Human IL-1α	AF-200-01A	18.0 kDa	159
Recombinant Murine IL-1α	211-11A	17.9 kDa	156
Recombinant Rat IL-1α	400-01A	17.7 kDa	155

IL-1β

Synonyms:	Interleukin-1β, Catabolin, Lymphocyte-Activating Factor (LAF), Endogenous Pyrogen (EP), Leukocyte Endogenous Mediator (LEM), Mononuclear Cell Factor (MCF)		
Description:	IL-1β is a proinflammatory cytokine produced in a variety of cells, including monocytes, tissue macrophages, keratinocytes, and other epithelial cells. Both IL-1α and IL-1β bind to the same receptor and have similar, if not identical, biological properties. These cytokines have a broad range of activities including the stimulation of thymocyte proliferation by inducing IL-2 release, B-cell maturation and proliferation, mitogenic FGF-like activity, and the release of prostaglandin and collagenase from synovial cells. However, whereas IL-1β is a secreted cytokine, IL-1α is predominantly a cell-associated cytokine.		
Research Areas:	Allergy, Angiogenesis/Cardiovascular, Bone/Skeletal/Cartilage, Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Transplantation, Wound Healing		
AA Sequence:			
Human IL-1β:	APVRSLNCTL RDSQQKSLVM SGPYELKALH LQQDMEQQV VFSMSFVQGE ESNDKIPVAL GLKEKNLYLS CVLKDDKPTL QLESVDPKNY PKKKMEKRFV FNKIEINNKL EFESAQFPNW YISTSQAENM PVFLGGTKGG QDITDFTMQF VSS		
Murine IL-1β:	MVPIRQLHYR LRDEQQKSLV LSDPYELKAL HLNGQNINQQ VIFSMSFVQG EPSNDKIPVA LGLKGKNLYL SCVMKDGTP T LQLESVDPKQ YPKKKMEKRF VFNKIEVKSK VEFESAEPFN WYISTSQAEH KPVFLGNNSG QDIIDFTMES VSS		
Rat IL-1β:	MVPIRQLHCR LRDEQQKCLV LSDPCELKAL HLNGQNISQQ VVFSMSFVQG ETSNDKIPVA LGLKGLNLYL SCVMKDGTP T LQLESVDPKQ YPKKKMEKRF VFNKIEVKTK VEFESAQFPN WYISTSQAEH RPVFLGNSNG RDIVDFTMEP VSS		
Estimated pI:	Human IL-1β: 5.80 Murine IL-1β: 8.19 Rat IL-1β: 8.74	Accession #:	Human IL-1β: P01584 Murine IL-1β: P10749 Rat IL-1β: Q63264
NCBI Gene ID:	Human IL-1β: 3553 Murine IL-1β: 16176 Rat IL-1β: 24494		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-1β	200-01B	17.3 kDa	153
Animal-Free Recombinant Human IL-1β	AF-200-01B	17.3 kDa	153
Recombinant Murine IL-1β	211-11B	17.5 kDa	153
Animal-Free Recombinant Murine IL-1β	AF-211-11B	17.5 kDa	153
Recombinant Rat IL-1β	400-01B	17.4 kDa	153

IL-1RA

Synonyms:Interluekin-1 Receptor Antagonist, ICIL-1RA, IRAP, IL-1RN

Description:Interleukin-1 receptor antagonist (IL-1RA) is a naturally-occurring, inflammatory-inhibitor protein. It inhibits the activity of IL-1 α and IL-1 β by competitively blocking their binding to type I and type II receptors. IL-1RA is produced by corneal epithelial cells, monocytes, neutrophils, macrophages, and fibroblasts. Therapeutically, IL-1RA may help in the treatment of sepsis, cachexia, rheumatoid arthritis, chronic myelogenous leukemia, asthma, psoriasis, and inflammatory bowel disease.

Research Areas:Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology

AA Sequence:MRPSGRKSSK MQAFRIWDVN QKTFYLRNNQ LVAGYLQGPN VNLEEKIDVV PIEPHALFLG IHGKMKCLSC
VKSGDETRLQ LEAVNITDLS ENRKQDKRFA FIRSDSGPTT SFESAACPGW FLCTAMEADQ PVSLTNMPDE
GVMVTKFYFQ EDE

Estimated pI:5.27**Accession #:** P14778

NCBI Gene ID:3554

Product Name	Catalog Number	MW	AA
Recombinant Human IL-1RA	200-01RA	17.2 kDa	153
Animal-Free Recombinant Human IL-1RA	AF-200-01RA	17.2 kDa	153

IL-2

Synonyms:	Interleukin-2, T-cell Growth Factor (TCGF), Aldesleukin		
Description:	IL-2 is a powerful immunoregulatory lymphokine produced by T-cells in response to antigenic or mitogenic stimulation. IL-2/IL-2R signaling is required for T-cell proliferation and other fundamental functions that are essential for the immune response. IL-2 stimulates growth and differentiation of B-cells, NK cells, lymphokine-activated killer cells, monocytes, macrophages and oligodendrocytes.		
Research Areas:	AIDS/HIV, Allergy, Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Transplantation, Wound Healing		
AA Sequence:			
Human IL-2:	MAPTSSSTKK TQLQLEHLLL DLQMILNGIN NYKNPKLTRM LTFKFYMPKK ATELKHLQCL EEELKPLEEV LNLAQSKNFH LRPRDLISNI NVIVLELKGS ETTFMCEYAD ETATIVEFLN RWITFAQSII STLT		
Murine IL-2:	PTSSSTSSST AEAQQQQQQQ QQQQQHLEQL LMDLQELLSR MENYRNLKLP RMLTFKFYLP KQATELKDLQ CLEDELGPLR HVLDLTQSKS FQLEDAENFI SNIRVTVVKL KGSNTFECQ FDDSATVVD FLRRWIAFCQ SIISTSPQ		
Rat IL-2:	MAPTSSPAKE TQQHLEQLLL DLQVLLRGID NYKNLKLPM LTFKFYLPKQ ATELKHLQCL ENELGALQRV LDLTQSKSFH LEDAGNFISN IRVTVVKLKG SENKFECQFD DEPATVVEFL RRWIAIAQSI ISTM		
Estimated pI:	Human IL-2: 7.23 Murine IL-2: 4.69 Rat IL-2: 6.35	Accession #:	Human IL-2: P60568 Murine IL-2: P04351 Rat IL-2: P17108
NCBI Gene ID:	Human IL-2: 3558 Murine IL-2: 16183 Rat IL-2: 116562		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-2	200-02	15.5 kDa	134
Animal-Free Recombinant Human IL-2	AF-200-02	15.5 kDa	134
PeptoGMP® Human IL-2	GMP200-02	15.5 kDa	134
Recombinant Murine IL-2	212-12	17.2 kDa	148
Animal-Free Recombinant Murine IL-2	AF-212-12	17.2 kDa	148
Recombinant Rat IL-2	400-02	15.3 kDa	134
Animal-Free Recombinant Rat IL-2	AF-400-02	15.3 kDa	134

sIL-2 Receptor α

Synonyms:	soluble Interleukin-2Rα, soluble IL-2 Receptor alpha, TAC-antigen, CD25 antigen		
Description:	The IL-2 receptor system consists of three non-covalently linked subunits termed IL-2Rα, IL-2Rβ, and IL-2Rγ. The IL-2Rα is a type I transmembrane protein consisting of a 219 amino acid extracellular domain, a 19 amino acid transmembrane domain and a 13 amino acid intracellular domain, which is not involved in the transduction of IL-2 signals. Proteolytic processing of IL-2Rα releases the entire extracellular domain of IL-2Rα, thereby generating a 219 amino acid soluble protein called soluble IL-2Rα (sIL-2Rα). The homodimeric form binds IL-2 (KD=10mM) and facilitates IL-2 signaling. The secreted sIL-2Rα is expressed on leukemia cells, lymphoma cells, and newly activated T and B cells, as well as on approximately 10% of NK cells.		
Research Areas:	AIDS/HIV, Immune System, Inflammation, Neurobiology, Transplantation		
AA Sequence:			
Human sIL-2 Receptor α: (<i>Insect</i> derived)	ELCDDDPPEI PHATFKAMAY KEGTMLNCEC KRGFRRIKSG SLYMLCTGNS SHSSWDNQCQ CTSSATRNTT KQVTPQPEEQ KERKTTEMQS PMQPVDQASL PGHCREPPPW ENEATERIYH FVVGQMVYYQ CVQGYRALHR GPAESVCKMT HGKTRWTQPQ LICTGEMETS QFPGEEKPQA SPEGRPESET SCLVTTTDFQ IQTEMAATME TSIFTTEYQ		
Human sIL-2 Receptor α: (<i>CHO</i> derived)	ELCDDDPPEI PHATFKAMAY KEGTMLNCEC KRGFRRIKSG SLYMLCTGNS SHSSWDNQCQ CTSSATRNTT KQVTPQPEEQ KERKTTEMQS PMQPVDQASL PGHCREPPPW ENEATERIYH FVVGQMVYYQ CVQGYRALHR GPAESVCKMT HGKTRWTQPQ LICTGEMETS QFPGEEKPQA SPEGRPESET SCLVTTTDFQ IQTEMAATME TSIFTTEYQ		
Estimated pI:	Human sIL-2 Receptor α (<i>Insect</i> derived): 5.17 Human sIL-2 Receptor α (<i>CHO</i> derived): 5.17	Accession #:	Human sIL-2 Receptor α (<i>Insect</i> derived): P01589 Human sIL-2 Receptor α (<i>CHO</i> derived): P01589
NCBI Gene ID:	Human sIL-2 Receptor α (<i>Insect</i> derived): 3559 Human sIL-2 Receptor α (<i>CHO</i> derived): 3559		

Product Name	Catalog Number	MW	AA
Recombinant Human sIL-2 Receptor α (<i>Insect</i> derived)	200-02R	24.8 kDa	219
Recombinant Human sIL-2 Receptor α (<i>CHO</i> derived)	200-02RC	24.8 kDa	219

IL-3, -3β

Synonyms:	Interleukin-3, MCGF (Mast Cell Growth Factor), Multi-CSF, HCGF, P-cell stimulation factor, Interleukin-3β		
Description:	IL-3 is a hematopoietic growth factor that promotes the survival, differentiation and proliferation of committed progenitor cells of the megakaryocyte, granulocyte-macrophage, erythroid, eosinophil, basophil and mast cell lineages. Produced by T cells, mast cells and eosinophils, IL-3 enhances thrombopoiesis, phagocytosis, and antibody-mediated cellular cytotoxicity. Its ability to activate monocytes suggests that IL-3 may have additional immunoregulatory roles. Many of the IL-3 activities depend upon co-stimulation with other cytokines. IL-3 is a species-specific, variably glycosylated cytokine.		
Research Areas:	AIDS/HIV, Cancer, Diabetes/Weight Regulation, Immune System, Stem Cells & Differentiation		
AA Sequence:			
Human IL-3:	APMTQTTSLK TSWVNCSNMI DEIITHLKQP PLPLLDFFNNL NGEDQDILME NNLRRPNLEA FNRAVKSLQN ASAIESILKN LLPCLPLATA APTRHPIHIK DGDWNEFRRK LTFYTKLTEN AQAQQTTLSL AIF		
Murine IL-3:	MDTHRLTRTL NCSSIVKEII GKLPEPELKT DDEGPSLRNK SFRRVNLSKF VESQGEVDPE DRYVIKSNLQ KLNCCPLPTSA NDSALPGVFI RDLDDFRKKL RFYMVHLNDL ETVLTSRPPQ PASGSVSPNR GTVEC		
Rat IL-3β:	MISDRGSDAH HLLRTLDCRT IALEILVKLP YPQVSGLNNS DDKANLRNST LRRVNLDEFL KSQEEFDSQD TTDIKSKLQK LKCCIPAAAS DSVLPGVYNK DLDDFKKKLR FYVIHLKDLQ PVSVSRPPQP TSSSDNFRPM TVEC		
Estimated pI:	Human IL-3: 7.25 Murine IL-3: 8.33 Rat IL-3β: 8.25	Accession #: Human IL-3: P08700 Murine IL-3: P01586 Rat IL-3β: P97688	
NCBI Gene ID:	Human IL-3: 3562 Murine IL-3: 16187 Rat IL-3β: 24495		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-3	200-03	15.0 kDa	133
Animal-Free Recombinant Human IL-3	AF-200-03	15.0 kDa	133
PeproGMP® Recombinant Human IL-3	GMP200-03	15.0 kDa	133
Recombinant Murine IL-3	213-13	15.1 kDa	135
Animal-Free Recombinant Murine IL-3	AF-213-13	15.1 kDa	135
Recombinant Rat IL-3β	400-03	16.3 kDa	144

IL-4

Synonyms:

Interleukin-4, BCGF, BCDF, B-cell Stimulating Factor (BSF-1)

Description:

IL-4 is a pleiotropic cytokine that regulates diverse T and B cell responses including cell proliferation, survival and gene expression. Produced by mast cells, T cells and bone marrow stromal cells, IL-4 regulates the differentiation of naive CD4+ T cells into helper Th2 cells, characterized by their cytokine-secretion profile that includes secretion of IL-4, IL-5, IL-6, IL-10, and IL-13, which favor a humoral immune response. Another dominant function of IL-4 is the regulation of immunoglobulin class switching to the IgG1 and IgE isotypes. Excessive IL-4 production by Th2 cells has been associated with elevated IgE production and allergy.

Research Areas:

Allergy, Apoptosis, Cancer, Immune System, Inflammation, Stem Cells & Differentiation, Transplantation

AA Sequence:

Human IL-4:

MHKCDITLQE IIKTLNSLTE QKTLCTELTV TDIFAASKNT TEKETFCRAA TVLRQFYSHH EKDTRCLGAT
AQQFHRHKQL IRFLKRLDRN LWGLAGLNSC PVKEANQSTL ENFLERLKTI MREKYSKCSS

Murine IL-4:

MHIHGCDKNH LREIIGILNE VTGEGTPCTE MDVPNVLTAT KNTTESELVC RASKVLRIFY LKHGKTPCLK
KNSSVLMELQ RLFRAFRLCD SSISCTMNES KSTSLKDFLE SLKSIMQMDY S

Rat IL-4:

MHGCNDSPLR EIINTLNQVT EKGTPCTEMF VPDVLTATRN TTENELICRA SRVLRKFYFP RDVPPCLKNK
SGVLGELRKL CRGVSGLNSL RSCTVNESTL TTLKDFLESL KSILRGKYLQ SCTSMS

Estimated pI:

Human IL-4: 9.72

Murine IL-4: 8.86

Rat IL-4: 9.86

Accession #: Human IL-4: P05112

Murine IL-4: P07750

Rat IL-4: P20096

NCBI Gene ID:

Human IL-4: 3565

Murine IL-4: 16189

Rat IL-4: 287287

Product Name	Catalog Number	MW	AA
Recombinant Human IL-4	200-04	15.1 kDa	130
Animal-Free Recombinant Human IL-4	AF-200-04	15.1 kDa	130
Recombinant Murine IL-4	214-14	13.5 kDa	121
Animal-Free Recombinant Murine IL-4	AF-214-14	13.5 kDa	121
Recombinant Rat IL-4	400-04	14.0 kDa	126

sIL-4 Receptor α

Synonyms:	soluble Interleukin-4Rα, soluble IL-4 Receptor alpha, CD124		
Description:	IL-4 can signal through type I and type II receptor complexes, which share a common gamma chain (γc). The type I receptor contains, in addition to the γc, an IL-4Rα subunit, whereas the type II receptor contains the IL-13Rα. The secreted extracellular domain of IL-4Rα, called sIL-4Rα, binds IL-4 and antagonizes its activity. It plays an important role in regulating the differentiation of naïve CD4+ T cells and class switching to IgG1 and IgE.		
Research Areas:	Allergy, Apoptosis, Asthma, Cancer, Eosinophilia, Immune System, Inflammation, Proliferation, Stem Cells & Differentiation, Transplantation		
AA Sequence:			
Human sIL-4 Receptor α: (HEK293 derived)	GNMKVLQEPT CVSDYMSIST CEWKMNNGPTN CSTE LRLLYQ LVFLLSEAHT CIPENNGGAG CVCHLLMDDV VSADNYTLDL WAGQQLLWKG SFKPSEHVKP RAPGNLTVHT NVSDTLLLTW SNPYPPDNYL YNHLTYAVNI WSENDPADFR IYNVTYLEPS LRIAAS TLKS GISYRARVRA WAQCYNTTWS EWSPSTKWHN SYREPFEQH		
Human sIL-4 Receptor α: (CHO derived)	GNMKVLQEPT CVSDYMSIST CEWKMNNGPTN CSTE LRLLYQ LVFLLSEAHT CIPENNGGAG CVCHLLMDDV VSADNYTLDL WAGQQLLWKG SFKPSEHVKP RAPGNLTVHT NVSDTLLLTW SNPYPPDNYL YNHLTYAVNI WSENDPADFR IYNVTYLEPS LRIAAS TLKS GISYRARVRA WAQCYNTTWS EWSPSTKWHN SYREPFEQH		
Estimated pI:	Human sIL-4 Receptor α (HEK293 derived): 5.73 Human sIL-4 Receptor α (CHO derived): 5.73	Accession #:	Human sIL-4 Receptor α (HEK293 derived): P24394 Human sIL-4 Receptor α (CHO derived): P24394
NCBI Gene ID:	Human sIL-4 Receptor α (HEK293 derived): 3566 Human sIL-4 Receptor α (CHO derived): 3566		

Product Name	Catalog Number	MW	AA
Recombinant Human sIL-4 Receptor α (HEK293 derived)	200-04R	23.9 kDa	209
Recombinant Human sIL-4 Receptor α (CHO derived)	200-04RC	23.9 kDa	209

IL-5

Synonyms:	Interleukin-5, EDF, BCDFII, TRF		
Description:	IL-5 is a hematopoietic growth factor that stimulates the proliferation and activation of eosinophils. Produced by mast cells, T cells, and eosinophils, IL-5 plays an important role in inducing cell-mediated immunity against parasitic infections and certain tumors. Elevated levels of IL-5 lead to Eosinophilia, which may result in the induction of asthma and other allergic diseases. Human and murine IL-5 are cross-species reactive.		
Research Areas:	Allergy, Immune System, Inflammation, Stem Cells & Differentiation, Wound Healing		
AA Sequence:			
Human IL-5 (monomer):	MIPTEIPTSA LVKETLALLS THRTLLIANE TLRIPVPVHK NHQLCTEEIF QGIGTLESQT VQGGTVERLF KNLSLIKKYI DGQKKKCGEE RRRVNQFLDY LQEF LGVMNT EWIIES		
Murine IL-5 (monomer):	MEIPMSTVVK ETLTQLSAHR ALLTSNETMR LPVPTHKNHQ LCIGEIFQGL DILKNQTVRG GTVEMLFQNL SLIKKYIDRQ KEKCGEERRR TRQFLDYLQE FLGVMSTEWA MEG		
Rat IL-5 (monomer):	MEIPMSTVVK ETLIQLSTHR ALLTSNETMR LPVPTHKNHQ LCIGEIFQGL DILKNQTVRG GTVEILFQNL SLIKKYIDGQ KEKCGEERRK TRHFLDYLQE FLGVMSTEWA MEV		
Estimated pI:	Human IL-5: 7.38 Murine IL-5: 8.70 Rat IL-5: 7.44	Accession #:	Human IL-5: P05113 Murine IL-5: P04401 Rat IL-5: Q08125
NCBI Gene ID:	Human IL-5: 3567 Murine IL-5: 16191 Rat IL-5: 24497		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-5	200-05	26.5 kDa	232
Animal-Free Recombinant Human IL-5	AF-200-05	26.5 kDa	232
Recombinant Murine IL-5	215-15	26.2 kDa	226
Recombinant Rat IL-5	400-05	26.0 kDa	226

IL-6

Synonyms:	Interleukin-6, 26 kDa protein, IFN-β2, B-Cell Differentiation Factor (BCDF), BSF-2, HPGF, HSF, MGI-2		
Description:	IL-6 is a pleiotropic cytokine that plays an important role in host defense by regulating immune and inflammatory responses. Produced by T cells, monocytes, fibroblasts, endothelial cells and keratinocytes, IL-6 has diverse biological functions. It stimulates B cell differentiation and antibody production, synergizes with IL-3 in megakaryocyte development and platelet production, induces expression of hepatic acute-phase proteins, and regulates bone metabolism. IL-6 signals through the IL-6 receptor system that consists of two chains, IL-6Rα and gp130. Murine IL-6 is inactive on human cells, while both human and murine are equally active on murine cells.		
Research Areas:	Allergy, Angiogenesis/Cardiovascular, Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Transplantation, Wound Healing		
AA Sequence:			
Human IL-6:	PVPPGEDSKD VAAPHRQPLT SSERIDKQIR YILDGISALR KETCNKSNMC ESSKEALAEN NLNLPKMAEK DGCFAQSGFNE ETCLVKIITG LLEFEVYLEY LQNRFESSEE QARAVQMSTK VLIQFLQKKA KNLDAITTPD PTTNASLLTK LQAQNQWLQD MTTHLILRSF KEFLQSSLRA LRQM		
Murine IL-6:	MFPTSQVRRG DFTEDTTPNR PVYTTSQVGG LITHVLWEIV EMRKELCNGN SDCMNND DAL AENNLKLPEI QRNDGCFQGTG YNQEICLLKI SSSLLEYHSY LEYMKNNLKD NKKDKARVLQ RDTETLIHIF NQEVKDLHKI VLPTPISNAL LTKLESQKE WLRTKTIQFI LKSLEEF LKV TLRSTRQT		
Rat IL-6:	MFPTSQVRRG DFTEDTTHNR PVYTTSQVGG LITYVLREIL EMRKELCNGN SDCMNSDDAL SENNLKLPEI QRNDGCFQGTG YNQEICLLKI CSSLLEFRFY LEFVKNNLQD NKKDKARVIQ SNTETLVHIF KQEIKDSYKI VLPTPTSNAL LMEKLESQKE WLRTKTIQLI LKALEEF LKV TMRSTRQT		
Estimated pI:	Human IL-6: 6.18 Murine IL-6: 6.52 Rat IL-6: 8.18	Accession #:	Human IL-6: P05231 Murine IL-6: P08505 Rat IL-6: P20607
NCBI Gene ID:	Human IL-6: 3569 Murine IL-6: 16193 Rat IL-6: 24498		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-6	200-06	20.9 kDa	184
Animal-Free Recombinant Human IL-6	AF-200-06	20.9 kDa	184
PeperoGMP® Recombinant Human IL-6	GMP200-06-10	20.9 kDa	184
Recombinant Murine IL-6	216-16	21.7 kDa	188
Animal-Free Recombinant Murine IL-6	AF-216-16	21.7 kDa	188
Recombinant Rat IL-6	400-06	21.7 kDa	188

sIL-6 Receptor α

Synonyms:	soluble Interleukin-6Rα, soluble IL-6 Receptor alpha, CD126, B cell stimulatory factor-2		
Description:	IL-6 mediates its biological effects through the type I IL-6 receptor system that consists of two chains, IL-6Rα and gp130. While the IL-6Rα chain is the binding component specific to IL-6, the gp130 chain only transmits signals of IL-6 when bound to IL-6Rα. The gp130 can also transmit signals from LIF, OSM, CNTF, IL-11 and CT-1 in conjunction with other receptor subunits. The low-affinity binding site for IL-6 is composed of IL-6Rα alone. IL-6Rα is expressed in a wide range of cells, including T cells, fibroblasts and macrophages. Soluble IL-6Rα, which consists of only the extracellular domain of the IL-6Rα chain, acts as an agonist of IL-6 activity at low concentrations.		
Research Areas:	Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation		
AA Sequence:			
Human sIL-6 Receptor α: (HEK293 derived)	LAPRRCPAQE VARGVLTSLP GDSVTLTCPG VEPEDNATVH WVLRKPAAGS HPSRWAGMGR RLLLRVQLH DSGNYSCYRA GRPAGTVHLL VDVPPPEEPQL SCFRKSPLSN VVCEWGPRST PSLTTKAVLL VRKFQNSPAE DFQEPQCYSQ ESQKFSCQLA VPEGDSSFYI VSMCVASSVG SKFSKTQTFQ GCGILQPDPP ANITVTAVAR NPRWLSVTWQ DPHSWNSSFY RLRFELRYRA ERSKTFTTWM VKDLQHHCVI HDAWSGLRHV VQLRAQEEFG QGEWSEWSPE AMGTPWTESR SPPAENEVST PMQALTNTKD DDNILFRDSA NATSLPVQD		
Human sIL-6 Receptor α: (CHO derived)	LAPRRCPAQE VARGVLTSLP GDSVTLTCPG VEPEDNATVH WVLRKPAAGS HPSRWAGMGR RLLLRVQLH DSGNYSCYRA GRPAGTVHLL VDVPPPEEPQL SCFRKSPLSN VVCEWGPRST PSLTTKAVLL VRKFQNSPAE DFQEPQCYSQ ESQKFSCQLA VPEGDSSFYI VSMCVASSVG SKFSKTQTFQ GCGILQPDPP ANITVTAVAR NPRWLSVTWQ DPHSWNSSFY RLRFELRYRA ERSKTFTTWM VKDLQHHCVI HDAWSGLRHV VQLRAQEEFG QGEWSEWSPE AMGTPWTESR SPPAENEVST PMQALTNTKD DDNILFRDSA NATSLPVQD		
Estimated pI:	Human sIL-6 Receptor α (HEK293 derived): 6.89 Human sIL-6 Receptor α (CHO derived): 7.11	Accession #: Human sIL-6 Receptor α (HEK293 derived): P08887 Human sIL-6 Receptor α (CHO derived): P08887	
NCBI Gene ID:	Human sIL-6 Receptor α (HEK293 derived): 3570 Human sIL-6 Receptor α (CHO derived): 3570		

Product Name	Catalog Number	MW	AA
Recombinant Human sIL-6 Receptor α (HEK293 derived)	200-06R	37.6 kDa	339
Recombinant Human sIL-6 Receptor α (CHO derived)	200-06RC	37.9 kDa	339

IL-7

Synonyms:

Interleukin-7, Lymphopoietin 1(LP-1), pre-B-cell factor

Description:

IL-7 is a hematopoietic growth factor that primarily affects early B and T cells. Produced by thymic stromal cells, spleen cells and keratinocytes, IL-7 can also co-stimulate the proliferation of mature T cells in combination with other factors, such as ConA and IL-2. Human and murine IL-7 are cross-species reactive.

Research Areas:

Cancer, Immune System, Inflammation, Stem Cells & Differentiation

AA Sequence:

Human IL-7:

MDCDIEGKDG KQYESVLMVS IDQLDSMKE IGSNCLNNEF NFFKRHICDA NKEGMFLFRA ARKLRQFLKM
NSTGDFDLHL LKVSEGTTL LNCTGQVKGR KPAALGEAQP TKSLEENKSL KEQKKLNDLC FLKRLLQEIK
TCWNKILMGT KEH

Murine IL-7:

MECHIKDKEG KAYESVLMIS IDELDKMTGT DSNCPNNEPN FFRKHVCDDT KEAAFLNRAA RKLKQFLKMN
ISEEFNVHLL TVSQGTQTLV NCTSKEEKNV KEQKKNDACF LKRLLREIKT CWNKILKGS I

Rat IL-7:

MDCHIKDKDG KAFGSVLMIS INQLDKMTGT DSDCPNNEPN FFKKHL CDDT KEAAFLNRAA RKLKQFLKMN
ISEEFNDHLL RVSDGTQTLV NCTSKEEKT I KEQKKNDPCF LKRLLREIKT CWNKILKGS I

Estimated pI:

Human IL-7: 9.07

Murine IL-7: 9.10

Rat IL-7: 9.26

Accession #:

Human IL-7: P13232

Murine IL-7: P10168

Rat IL-7: P56478

NCBI Gene ID:

Human IL-7: 3574

Murine IL-7: 16196

Rat IL-7: 25647

Product Name	Catalog Number	MW	AA
Recombinant Human IL-7	200-07	17.4 kDa	153
Animal-Free Recombinant Human IL-7	AF-200-07	17.4 kDa	153
Recombinant Murine IL-7	217-17	15.0 kDa	130
Recombinant Rat IL-7	400-07	15.0 kDa	130

163

IL-8 (CXCL8)

Synonyms:	Interleukin-8, Monocyte-Derived Neutrophil Chemotactic Factor (MDNCF), Neutrophil Activating Factor (NAF), NAP-1		
Description:	IL-8 is a proinflammatory CXC chemokine that can signal through the CXCR1 and CXCR2 receptors. It is secreted by monocytes and endothelial cells. IL-8 chemoattracts and activates neutrophils.		
Research Areas:	Allergy, Angiogenesis/Cardiovascular, Apoptosis, Chemotaxis, Immune System, Inflammation, Neurobiology, Transplantation, Wound Healing		
AA Sequence:			
Human IL-8 (CXCL8) (72 a.a.):	SAKELRCQCI KTYSKPFHPK FIKELRVIES GPHCANTEII VKLSDGRELC LDPKENWVQR VVEKFLKRAE NS		
Human IL-8 (CXCL8) (77 a.a.):	AVLPRSAKEL RCQCIKTYSK PFHPKFIKEL RVIESGPHCA NTEIIVKLSD GRELCCLDPKE NWVQRVVEKF LKRAENS		
Estimated pI:	Human IL-8 (CXCL8) (72 a.a.): 9.39 Human IL-8 (CXCL8) (77 a.a.): 9.65	Accession #:	Human IL-8 (CXCL8) (72 a.a.): P10145 Human IL-8 (CXCL8) (77 a.a.): P10145
NCBI Gene ID:	Human IL-8 (CXCL8) (72 a.a.): 3576 Human IL-8 (CXCL8) (77 a.a.): 3576		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-8 (CXCL8) (72 a.a.)	200-08M	8.4 kDa	72
Animal-Free Recombinant Human IL-8 (CXCL8) (72 a.a.)	AF-200-08M	8.4 kDa	72
Recombinant Human IL-8 (CXCL8) (77 a.a.)	200-08	8.9 kDa	77

IL-9

Synonyms:

Interleukin-9, p40 cytokine, T-cell growth factor p40

Description:

IL-9 is an immunoregulatory cytokine produced by IL-2 activated Th2 lymphocytes. IL-9 enhances the proliferation of T lymphocytes, mast cells, erythroid precursor cells and megakaryoblastic leukemia cell lines. Over-expression of IL-9 has been implicated in the pathogenesis of anaplastic lymphoma and Hodgkin’s disease. Whereas murine IL-9 can function on human cells, human IL-9 is inactive on mouse cells.

Research Areas:

Cancer, Immune System

AA Sequence:

Human IL-9:

MQGCPTLAGI LDINFLINKM QEDPASKCHC SANVTSCLC L GIPSDNCTRP CFSERLSQMT NTTMQTRYPL
IFSRVKKSVE VLKNNKCPYF SCEQPCNQTT AGNALTFLKS LLEIFQKEKM RGMRGKI

Murine IL-9:

MQRCSTTWGI RDTNYLIENL KDDPPSKCSC SGNVTSCLC L SVPTDDCTTP CYREGLLQLT NATQKSRLLP
VFHRVKRIVE VLKNITCPSF SCEKPCNQTM AGNTMSFLKS LLGTFQKTEM QRQKSRP

Rat IL-9:

MQRCSTSWG I QHTSYLIENL KDDPSSKCSC SANVTSCLC L PIPSDDCTTP CFQEGMSQVT NATQQSKFSP
FFFRVKRIVE TLKSNKCQFF SCEKPCNQTT AGNTVSFLKS LLKTFQKTEV QVQRSRA

Estimated pI:

Human IL-9: 9.85

Murine IL-9: 9.93

Rat IL-9: 9.75

Accession #:

Human IL-9: P15248

Murine IL-9: P15247

Rat IL-9: D4A819

NCBI Gene ID:

Human IL-9: 3578

Murine IL-9: 16198

Rat IL-9: 116558

Product Name	Catalog Number	MW	AA
Recombinant Human IL-9	200-09	14.0 kDa	127
Animal-Free Recombinant Human IL-9	AF-200-09	14.0 kDa	127
Recombinant Murine IL-9	219-19	14.3 kDa	127
Recombinant Rat IL-9	400-18	14.3 kDa	127

IL-10

Synonyms:	Interleukin-10, B-TCGF, CSIF, TGIF		
Description:	IL-10 is an immunosuppressive cytokine produced by a variety of mammalian cell types including macrophages, monocytes, T cells, B cells and keratinocytes. IL-10 inhibits the expression of proinflammatory cytokines such as IL-1 and TNF- α . Like IL-4, IL-10 enhances humoral immune responses and attenuates cell-mediated immune reactions. Human IL-10 is active on murine cells, but murine IL-10 is inactive on human cells.		
Research Areas:	AIDS/HIV, Allergy, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Transplantation		
AA Sequence:			
Human IL-10:	MSPGQGTQSE NSCTHFPGNL PNMLRDLRDA FSRVKTFFQM KDQLDNLLLK ESLEDFKGY LGCQALSEMI QFYLEEVMPPQ AENQDPDIKA HVNSLGENLK TLRRLRRCH RFLPCENKSK AVEQVKNAFN KLQEKGIYKA MSEFDIFINY IEAYMTMKIR N		
Murine IL10:	MSRGQYSRED NNCTHFPVGQ SHMLLELRTA FSQVKTFQQT KDQLDNILLT DSLMQDFKGY LGCQALSEMI QFYLVEVMPPQ AEKHGPEIKE HLNSLGQKLK TLRMLRRCH RFLPCENKSK AVEQVKSDFN KLEDQGVYKA MNEFDIFINC IEAYMMIKMK S		
Rat IL-10:	SKGHSIKGDN NCTHFPVSQT HMLRELRAAF SQVKTFQKK DQLDNIVLTD SLLQDFKGYL GCQALSEMIK FYLVEVMPPQA ENHGPEIKEH LNSLGEKLT LWIQLRRCHR FLPCENKSKA VEQVKNDFNK LQDKGVYKAM NEFDIFINCI EAYVTLKMKN		
Estimated pI:	Human IL-10: 8.22 Murine IL-10: 8.68 Rat IL-10: 9.06	Accession #: Human IL-10: P22301 Murine IL-10: P18893 Rat IL-10: P29456	
NCBI Gene ID:	Human IL-10: 3586 Murine IL-10: 16153 Rat IL-10: 25325		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-10	200-10	18.6 kDa	161
Animal-Free Recombinant Human IL-10	AF-200-10	18.6 kDa	161
Recombinant Murine IL-10	210-10	18.7 kDa	161
Animal-Free Recombinant Murine IL-10	AF-210-10	18.7 kDa	161
Recombinant Rat IL-10	400-19	18.7 kDa	160

IL-11

Synonyms:	Interleukin-11, AGIF (Adipogenesis Inhibitory Factor)		
Description:	IL-11 is a multifunctional cytokine produced by stromal cells, such as fibroblasts, epithelial cells and osteoclasts. It is expressed in a wide variety of tissues, including thymus, lung, bone, connective tissue and central nervous system. IL-11 plays an important regulatory role in hematopoiesis by stimulating growth of myeloid, erythroid and megakaryocyte progenitor cells. It also regulates bone metabolism, inhibits production of proinflammatory cytokines, and protects against gastromucosal injury.		
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation		
AA Sequence:			
Human IL-11:	MPGPPPGPPR VSPDPRAELD STVLLTRSLL ADTRQLAAQL RDKFPADGDH NLDLPTLAM SAGALGALQL PGVLTRLRAD LLSYLRHVQW LRRAGGSSLK TLEPELGTLQ ARLDRLRLRL QLLMSRLALP QPPDPPAPP LAPPSSAWGG IRAAHAILGG LHLTLDWAVR GLLLLKTRL		
Murine IL-11:	MPGPPAGSPR VSSDPRADLD SAVLLTRSLL ADTRQLAAQM RDKFPADGDH SLDSLPTLAM SAGTLGSLQL PGVLTRLRVD LMSYLRHVQW LRRAGGPSLK TLEPELGALQ ARLERLLRLRL QLLMSRLALP QAAPDQPVIP LGPPASAWGS IRAAHAILGG LHLTLDWAVR GLLLLKTRL		
Estimated pI:	Human IL-11: 11.60 Murine IL-11: 11.60	Accession #: Human IL-11: P20809 Murine IL-11: P47873	
NCBI Gene ID:	Human IL-11: 3589 Murine IL-11: 16156		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-11	200-11	19.3 kDa	179
Animal-Free Recombinant Human IL-11	AF-200-11	19.3 kDa	179
Recombinant Murine IL-11	220-11	19.1 kDa	179

IL-12

Synonyms:	Interleukin-12, NKSF, CTL Maturation Factor (TCMF), Cytotoxic Lymphocyte Maturation Factor (CLMF), TS-F; p35: Interleukin-12 subunit alpha, IL-12 subunit p35, IL-12A, Cytotoxic Lymphocyte Maturation Factor 35 kDa subunit (CLMF p35), NK cell Stimulating Factor Chain 1; p40: Interleukin-12 subunit beta, IL-12 subunit p40, IL-12B, Cytotoxic Lymphocyte Maturation Factor 40 kDa subunit (CLMF p40), NK cell Stimulating Factor Chain 2
Description:	IL-12 is a potent regulator of cell-mediated immune responses and it induces IFN- γ production by NK and T cells. It is produced by activated monocytes/macrophage cells, B lymphocytes and connective tissue-type mast cells. Among its biological activities, IL-12 promotes the growth and activity of activated NK, CD4+ and CD8+ cells, and induces the development of IFN- γ -producing Th1 cells. IL-12 is a disulfide-linked heterodimeric protein (p70), composed of two subunits, p35 and p40, which are encoded by two different genes. Accumulating data indicates that p40 secretion precedes that of IL-12 expression. In addition, to its ability to covalently bind to p35 to form IL-12, p40 can bind to p19 to form IL-23, or it can form the homodimer designated IL-12 p80. Elevated levels of IL-12 p80 correlate to macrophage recruitment and increased inflammation in asthma and respiratory viral infection models.
Research Areas:	Allergy, Angiogenesis/Cardiovascular, Apoptosis, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Transplantation
AA Sequence:	
Human IL-12 p40:	IWELKKDVYV VELDWPDPAP GEMVLTCDT PEEDGITWTL DQSSEVLGSG KTLTIQVKEF GDAGQYTCHK GGEVLSHSL LLHKKEGDIW STDILKDQKE PKNKTFLRCE AKNYSGRFTC WWLTTISTDL TFSVKSSRGS SDPQGVTCGA ATLSAERVRG DNKEYEYSVE CQEDSACPAA EESLPIEVMV DAVHKLKYEN YTSSFFIRDI IKPDPPKNLQ LKPLKNSRQV EVSWEYPDTW STPHSYFSLT FCVQVQGKSK REKKDRVFTD KTSATVICRK NASISVRAQD RYYSSSWSEW ASVPCS
Murine IL-12 p40:	MWELEKDVYV VEVDWTPDAP GETVNLTCDT PEEDDITWTS DQRHGVIGSG KTLTITVKEF LDAGQYTCHK GGETLHSHL LLHKKEGDIW STEILKNFKN KTFKLCAPN YSGRFTCSWL VQRNMDLKFN IKSSSSSPDS RAVTCGMASL SAEKVTLDQR DYEKYSVSCQ EDVTCPTAEE TLPIELALEA RQONKYENYS TSFFIRDIK PDPPKNLQMK PLKNSQVEVS WEYPDSWSTP HSYFSLKFFV RIQRKKEKMK ETEEGCNQKG AFLVEKTSTE VQCKGGNVCV QAQDRYNNSS CSKWACVPCR VRS
Human IL-12 p70:	
p35 Subunit:	RNLVPVATPDP GMFPCLHHSQ NLLRAVSNML QKARQTLEFY PCTSEEIDHE DITKDKTSTV EACLPLELTK NESCLNSRET SFITNGSCLA SRKTSFMAL CLSSIEDLK MYQVEFKTMN AKLLMDPKRQ IFLDQNMLAV IDELMQALNF NSETVPQKSS LEEPDFYKTK IKLCILLHAF RIRAVTIDRV MSYLNAS
p40 Subunit:	IWELKKDVYV VELDWPDPAP GEMVLTCDT PEEDGITWTL DQSSEVLGSG KTLTIQVKEF GDAGQYTCHK GGEVLSHSL LLHKKEGDIW STDILKDQKE PKNKTFLRCE AKNYSGRFTC WWLTTISTDL TFSVKSSRGS SDPQGVTCGA ATLSAERVRG DNKEYEYSVE CQEDSACPAA EESLPIEVMV DAVHKLKYEN YTSSFFIRDI IKPDPPKNLQ LKPLKNSRQV EVSWEYPDTW STPHSYFSLT FCVQVQGKSK REKKDRVFTD KTSATVICRK NASISVRAQD RYYSSSWSEW ASVPCS
Murine IL-12 p70:	
p35 Subunit:	RVIPVSGPAR CLSQSRNLLK TTDDMVKTAR EKLKHYSC TA EDIDHEDITR DQTSTLKTCL PLELHKNE SC LATRETSSST RGSCLPQKT SLMMTLCIGS IYEDLKMYQT EFQAINAALQ NNNHQQIILD KGMLVAIDEL MQSLNHNGET LRQKPPVGEA DPYRVKMKLC ILLHAFSTRV VTINRVMGYL SSA
p40 Subunit:	MWELEKDVYV VEVDWTPDAP GETVNLTCDT PEEDDITWTS DQRHGVIGSG KTLTITVKEF LDAGQYTCHK GGETLHSHL LLHKKEGDIW STEILKNFKN KTFKLCAPN YSGRFTCSWL VQRNMDLKFN IKSSSSSPDS RAVTCGMASL SAEKVTLDQR DYEKYSVSCQ EDVTCPTAEE TLPIELALEA RQONKYENYS TSFFIRDIK PDPPKNLQMK PLKNSQVEVS WEYPDSWSTP HSYFSLKFFV RIQRKKEKMK ETEEGCNQKG AFLVEKTSTE VQCKGGNVCV QAQDRYNNSS CSKWACVPCR VRS
Human IL-12 p80:	IWELKKDVYV VELDWPDPAP GEMVLTCDT PEEDGITWTL DQSSEVLGSG KTLTIQVKEF GDAGQYTCHK GGEVLSHSL LLHKKEGDIW STDILKDQKE PKNKTFLRCE AKNYSGRFTC WWLTTISTDL TFSVKSSRGS SDPQGVTCGA ATLSAERVRG DNKEYEYSVE CQEDSACPAA EESLPIEVMV DAVHKLKYEN YTSSFFIRDI IKPDPPKNLQ LKPLKNSRQV EVSWEYPDTW STPHSYFSLT FCVQVQGKSK REKKDRVFTD KTSATVICRK NASISVRAQD RYYSSSWSEW ASVPCS

IL-12 (Continued)

Estimated pI:	Human IL-12 p40: 5.28	Accession #:	Human IL-12 p40: P29460
	Murine IL-12 p40: 6.20		Murine IL-12 p40: P43432
	Human IL-12 p70: 5.56		Human IL-12 p70: P35 subunit: P29459
	Murine IL-12 p70: 6.75		P40 subunit: P29460
	Human IL-12 p80: 5.28		Murine IL-12 p70: P35 subunit: P43431
NCBI Gene ID:			P40 subunit: P43432
	Human IL-12 p40: 3593		Human IL-12 p80: P29460
	Murine IL-12 p40: 16160		
	Human IL-12 p70: p35 subunit: 16159		
	p40 subunit: 16160		
	Murine IL-12 p70: p35 subunit: 3592		
	p40 subunit: 3593		
	Human IL-12 p80: 3593		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-12 p40	200-12P40	40.0 kDa	306
Recombinant Murine IL-12 p40	210-12P40H	40.0 kDa	313
Recombinant Human IL-12 p70	200-12	75.0 kDa	503
Recombinant Human IL-12 p70	200-12H	75.0 kDa	503
Recombinant Murine IL-12 p70	210-12	75.0 kDa	506
Recombinant Human IL-12 p80	200-12P80H	80.0 kDa	612

IL-13

Synonyms:	Interleukin-13, NC30 (Human), P600 (Murine)		
Description:	IL-13 is an immunoregulatory cytokine produced primarily by activated Th2 cells, and also by mast cells and NK cells. Targeted deletion of IL-13 in mice resulted in impaired Th2 cell development and indicated an important role for IL-13 in the expulsion of gastrointestinal parasites. IL-13 exerts anti-inflammatory effects on monocytes and macrophages and it inhibits the expression of inflammatory cytokines such as IL-1β, TNF-α, IL-6 and IL-8. IL-13 has also been shown to enhance B cell proliferation and to induce isotype switching, resulting in increased production of IgE. Blocking of IL-13 activity inhibits the pathophysiology of asthma. Human and murine IL-13 are cross-species reactive.		
Research Areas:	AIDS/HIV, Allergy, Cancer, Immune System, Inflammation, Stem Cells & Differentiation		
AA Sequence:			
Human IL-13:	MSPGPPVPPST ALRELIEELV NITQNQKAPL CNGSMVWSIN LTAGMYCAAL ESLINVSGCS AIEKTQRMLS GFCPHKVSAG QFSSLHVRDT KIEVAQFVKD LLLHLKKLFR EGRFN		
Human IL-13 Variant:	MSPGPPVPPST ALRELIEELV NITQNQKAPL CNGSMVWSIN LTAGMYCAAL ESLINVSGCS AIEKTQRMLS GFCPHKVSAG QFSSLHVRDT KIEVAQFVKD LLLHLKKLFR EGQFN		
Murine IL-13:	MPVPRSVSLP LTLKELIEEL SNITQDQTPL CNGSMVWSVD LAAGGFCVAL DSLTNISNCN AIYRTQRILH GLCNRKAPTT VSSLPDTKIE VAHFITKLLS YTKQLFRHGP F		
Rat IL-13 (109 a.a.):	VRRSTSPVA LRELIEELSN ITQDQKTS LC NSSIVWSVDI TAGGFCAALE SLTNISSCNA IHRTQRILNG LCNQKASDVA SSPPDTKIEV AQFISKLLNY SKQLFRYGH		
Rat IL-13 (113 a.a.):	TPGPVRRSTS PPVALRELIE ELSNITQDQK TSLCNSSIVW SVDLTAGGFC AALESLTNIS SCNAIHRTQR ILNGLCNQKA SDVASSPPDT KIEVAQFISK LLNYSKQLFR YGH		
Estimated pI:	Human IL-13: 9.37 Human IL-13 Variant: 9.03 Murine IL-13: 9.13 Rat IL-13 (109 a.a.): 9.13 Rat IL-13 (113 a.a.): 9.13	Accession #:	Human IL-13: P35225 Human IL-13 Variant: P35225 Murine IL-13: P20109 Rat IL-13 (109 a.a.): P42203 Rat IL-13 (113 a.a.): P42203
NCBI Gene ID:	Human IL-13: 3596 Human IL-13 Variant: 3596 Murine IL-13: 16163 Rat IL-13 (109 a.a.): 116553 Rat IL-13 (113 a.a.): 116553		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-13	200-13	12.6 kDa	115
Animal-Free Recombinant Human IL-13	AF-200-13	12.6 kDa	115
Recombinant Human IL-13 Variant	200-13A	12.6 kDa	115
Recombinant Murine IL-13	210-13	12.3 kDa	111
Recombinant Rat IL-13 (109 a.a.)	400-16	11.9 kDa	109
Recombinant Rat IL-13 (113 a.a.)	400-16L	12.3 kDa	113

IL-15

Synonyms:	Interleukin-15, IL-T		
Description:	IL-15 is an immunomodulating cytokine that stimulates the proliferation of T lymphocytes and shares many biological properties with IL-2. IL-15 exerts its biological activities primarily on T cells. It is also essential in the development, survival and activation of NK cells. Increased expression of IL-15 has been linked to rheumatoid arthritis, inflammatory bowel disease, and diseases affiliated with retroviruses HIV and HTLV-I. Human IL-15 is biologically active on mouse cells as measured by the dose-dependent stimulation of the proliferation of mouse CTLL cells.		
Research Areas:	AIDS/HIV, Apoptosis, Cancer, Immune System, Neurobiology, Stem Cells & Differentiation		
AA Sequence:			
Human IL-15:	MNWVNVISDL KKIEDLIQSM HIDATLYTES DVHPSCKVTA MKCFLELELQV ISLESGDASI HDTVENLIIL ANNSLSSNGN VTESGCKECE ELEEKNIKEF LQSFVHIVQM FINTS		
Murine IL-15:	MNWIDVRYDL EKIESLIQSI HIDTTLYTDS DFHPSCKVTA MNCFLELELQV ILHEYSNMTL NETVRNVLYL ANSTLSSNKN VAESGCKECE ELEEKTFTEF LQSFIRIVQM FINTS		
Rat IL-15:	MNWIDVRYDL EKIESLIQFI HIDTTLYTDS DFHPSCKVTA MNCFLELELQV ILHEYSNMTL NETVRNVLYL ANSTLSSNKN VIESGCKECE ELEERNFTEF LQSFIVHIVQM FINTS		
Estimated pI:	Human IL-15: 4.35 Murine IL-15: 4.41 Rat IL-15: 4.40	Accession #:	Human IL-15: P40933 Murine IL-15: P48346 Rat IL-15: P97604
NCBI Gene ID:	Human IL-15: 3600 Murine IL-15: 16168 Rat IL-15: 25670		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-15	200-15	12.9 kDa	115
Animal-Free Recombinant Human IL-15	AF-200-15	12.9 kDa	115
Recombinant Murine IL-15	210-15	13.3 kDa	115
Recombinant Rat IL-15	400-24	13.5 kDa	115

IL-16

Synonyms:	Interleukin-16, LCF (Lymphocyte Chemoattractant Factor)		
Description:	IL-16 is a CD8+ T cell-derived cytokine that induces chemotaxis of CD4+ T cells, CD4+ monocytes, and eosinophils. Analysis by gel filtration suggests that, under physiological conditions, hIL-16 exists predominantly as a noncovalently linked multimer, but that some IL-16 may exist as a monomer. However, only the multimeric form appears to possess chemotactic activity, suggesting that receptor cross-linking may be required for activity. IL-16 also induces expression of IL-2 receptor (IL-2R) and MHC class II molecules on CD4 + T cells. Human and murine IL-16 show significant cross-species reactivity.		
Research Areas:	AIDS/HIV, Apoptosis, Immune System, Inflammation		
AA Sequence:			
Human IL-16 (121 a.a):	SAASASAASD VSVESTAEAT VCTVTLEKMS AGLGFSLEGG KGSLHGDKPL TINRIFKGAA SEQSETVQPG DEILQLGGTA MQGLTRFEAW NIIKALPDGP VTIVIRRKSL QSKETTAAGD S		
Human IL-16 (129 a.a):	PDLNSSTD SAASASAASDVS VESTAEATVC TVTLEKMSAG LGFSLEGGKG SLHGDKPLTI NRIFKGAASE QSETVQPGDE ILQLGGTAMQ GLTRFEAWNI IKALPDGPVT IVIRRKSLQS KETTAAGDS		
Estimated pI:	Human IL-16 (121 a.a): 4.90 Human IL-16 (129 a.a): 4.58	Accession #:	Human IL-16 (121 a.a): Q14005 Human IL-16 (129 a.a): Q14005
NCBI Gene ID:	Human IL-16 (121 a.a): 3603 Human IL-16 (129 a.a): 3603		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-16 (121 a.a)	200-16A	12.4 kDa	121
Animal-Free Recombinant Human IL-16 (121 a.a)	AF-200-16A	12.4 kDa	121
Recombinant Human IL-16 (129 a.a)	200-16	13.3 kDa	129

IL-17A

Synonyms:

Interleukin-17, IL-17, CTLA-8

Description:

The originally described IL-17 protein, now known as IL-17A, is a homodimer of two 136 amino acid chains that are secreted by activated T-cells, which act on stromal cells to induce production of proinflammatory and hematopoietic bioactive molecules. Today, IL-17 represents a family of structurally-related cytokines that share a highly conserved C-terminal region, but differ from one another in their N-terminal regions and in their distinct biological roles. The six known members of this family, IL-17A through IL-17F, are secreted as homodimers. IL-17A exhibits cross-species bioactivity between human and murine cells.

Research Areas:

AIDS/HIV, Angiogenesis/Cardiovascular, Arthritis, Immune System, Inflammation

AA Sequence (monomer):

Human IL-17A:

MIVKAGITIP RNPGCPNSED KNFPRTVMVN LNIHNRNTNT NPKRSSDYNN RSTSPWNLHR NEDPERYPSV
IWEAKCRHLG CINADGNVDY HMNSVPIQQE ILVLRREPPH CPNSFRLEKI LSVVGCTCVT PIVHHVA

Murine IL-17A:

AAIIPQSSAC PNTEAKDFLQ NVKVNLIKVFN SLGAKVSSRR PSDYLNRRSTS PWTLHRNEDP DRYPSVIWEA
QCRHQRCVNA EGKLDHHMNS VLIQQEILVL KREPESCPFT FRVEKMLVGV GCTCVASIVR QAA

Estimated pI:

Human IL-17A: 9.73
Murine IL-17A: 9.66

Accession #:

Human IL-17A: Q16552
Murine IL-17A: Q62386

NCBI Gene ID:

Human IL-17A: 3605
Murine IL-17A: 16171

Product Name	Catalog Number	MW	AA
Recombinant Human IL-17A	200-17	31.3 kDa	274
Animal-Free Recombinant Human IL-17A	AF-200-17	31.3 kDa	274
Recombinant Murine IL-17A	210-17	30.0 kDa	266

173

IL-17B

Synonyms:Interleukin-17B, IL-20, NIRF, Cytokine ZCYTO7

Description:IL-17B is a disulfide-linked homodimer of two 161 amino acid polypeptide chains. It belongs to the IL-17 family of structurally-related cytokines that share a highly conserved C-terminal region, but differ from one another in their N-terminal regions and in their distinct biological roles. The six known members of this family, IL-17A through IL-17F, are secreted as homodimers. IL-17B is expressed by T-cells, and has been shown to stimulate release of TNF- α and IL-1 β from cells of the monocyte lineage.

Research Areas:Arthritis, Immune System

AA Sequence (monomer):MQPRSPKSKR KGQGRPGPLA PGPHQVPLDL VSRMKPYARM EEYERNIEEM VAQLRNSSEL AQRKCEVNLQ
LWMSNKRSLS PWGYSINHDP SRIPVDLPEA RCLCLGCVNP FTMQEDRSMV SVPVFSQVPV RRRLCPPPPR
TGPCRQRAVM ETIAVGCTCI F

Estimated pI:10.55**Accession #:** Q9HF5

NCBI Gene ID:27190

Product Name	Catalog Number	MW	AA
Recombinant Human IL-17B	200-28	36.6 kDa	322

IL-17D

Synonyms:

Interleukin-17D

Description:

IL-17D is a disulfide-linked homodimer of two 185 amino acid polypeptide chains. It belongs to the IL-17 family of structurally-related cytokines that share a highly conserved C-terminal region, but differ from one another in their N-terminal regions and in their distinct biological roles. The six known members of this family, IL-17A through IL-17F, are secreted as homodimers. IL-17D has the ability to stimulate the production of IL-6, IL-8 and GM-CSF, and inhibits hemopoiesis of myeloid progenitor cells in colony-forming assays.

Research Areas:

Bone/Skeletal/Cartilage, Immune System

AA Sequence (monomer):

APRAGRPAR PRGCADRPEE LLEQLYGRLA AGVLSAFHHT LQLGPREQAR NASCPAGGRP ADRFRFPPTN
LRSVSPWAYR ISYDPARYPR YLPEAYCLCR GCLTGLFGEE DVRFRSAPVY MPTVVLRRTP ACAGGRSVYT
EAYVTIPVGC TCVPEPEKDA DSINSSIDKQ GAKLLLGPNDA APAGP

Estimated pI:

10.23

Accession #:

Q8TAD2

NCBI Gene ID:

53342

Product Name	Catalog Number	MW	AA
Recombinant Human IL-17D	200-27	40.5 kDa	370
Animal-Free Recombinant Human IL-17D	AF-200-27	40.5 kDa	370

IL-17E

Synonyms:	Interleukin-17E, IL-25		
Description:	IL-17E is a disulfide-linked homodimer of two 145 amino acid polypeptide chains. It belongs to the IL-17 family of structurally-related cytokines that share a highly conserved C-terminal region, but differ from one another in their N-terminal regions and in their distinct biological roles. The six known members of this family, IL-17A through IL-17F, are secreted as homodimers. IL-17E stimulates secretion of IL-8, and induces activation of the transcription factor NF-κB in cells that express the IL-17BR receptor.		
Research Areas:	Cancer, Immune System, Inflammation		
AA Sequence (monomer):	MYSHWPSCCP SKGQDTSEEL LRWSTVPVPP LEPARPNRHP ESCRASEDGP LNSRAISPWR YELDRDLNRL PQDLYHARCL CPHCVSLQTG SHMDPRGNSE LLYHNQTVFY RRPCHGEKGT HKGYCLERRL YRVSLACVCV RPRVMG		
Estimated pI:	9.91	Accession #:	Q9H293
NCBI Gene ID:	64806		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-17E	200-24	33.8 kDa	292
Animal-Free Recombinant Human IL-17E	AF-200-24	33.8 kDa	292

IL-17F

Synonyms:	Interleukin-17F		
Description:	IL-17F, a member of the IL-17 family of structurally related cytokines, has been shown to stimulate the proliferation and activation of T-cells and PBMCs. IL-17F also regulates cartilage matrix turnover and inhibits angiogenesis. The mature human IL-17F is a homodimeric protein with a total weight of 30.1 kDa, consisting of two 133 amino acid residue chains.		
Research Areas:	Angiogenesis/Cardiovascular, Arthritis, Immune System		
AA Sequence (monomer):			
Human IL-17F:	MRKIPKVGHT FFQKPESCPP VPGGSMKLDI GIINENQRVMSRNIERSRST SPWNYTVTWD PNRYPSEVVQ AQCRNLGCIN AQGKEDISMN SVPIQQETLV VRRKHQGCSV SFQLEKVLVT VGCTCVTPVI HHVQ		
Murine IL-17F:	MRKNPKAGVP ALQKAGNCPPLEDNTRVVDI RIFNQNGIS VPREFQNRSS SPWDYNITRD PHRFPSEIAE AQCRHSGCIN AQGQEDSTMN SVAIQQEILV LRREPQGCSN SFRLEKMLLK VGCTCVKPIV HQAA		
Estimated pI:	Human IL-17F: 9.86 Murine IL-17F: 9.84	Accession #:	Human IL-17F: Q96PD4 Murine IL-17F: Q7TN17
NCBI Gene ID:	Human IL-17F: 112744 Murine IL-17F: 257630		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-17F	200-25	30.1 kDa	268
Animal-Free Recombinant Human IL-17F	AF-200-25	30.1.kDa	268
Recombinant Murine IL-17F	210-17F	30.0 kDa	268

IL-19

Synonyms: Interleukin-19, Melanoma differentiation-associated protein-like protein

Description: IL-19 belongs to the IL-10 family of regulatory cytokines, which includes IL-10, IL-19, IL-20, IL-22, IL-24 and IL-26. Members of this family share partial homology in their amino acid sequences, but they are dissimilar in their biological functions. Preliminary data suggests that IL-19 is a proinflammatory cytokine, because it up-regulates IL-6 and TNF- α , and induces apoptosis through TNF- α . IL-19 signals through the type I IL-20R. Human and murine IL-19 share 71% amino acid sequence identity.

Research Areas: Apoptosis, Immune System

AA Sequence (monomer): MLRRCLISTD MHHIEESFQE IKRAIQAKDT FPNVTILSTL ETLQIIKPLD VCCVTKNLLA FYVDRVFKDH
QEPNPKILRK ISSIANSFLY MQKTLRQCQE QRQCHCRQEA TNATRVIHND YDQLEVHAAA IKSLGELDVF
LAWINKNHEV MSSA

Estimated pI: 8.56 **Accession #:** Q9UHD0

NCBI Gene ID: 29949

Product Name	Catalog Number	MW	AA
Recombinant Human IL-19	200-19	35.8 kDa	308

IL-20

Synonyms:	Interleukin-20, Cytokine ZCYTO10		
Description:	IL-20 is a member of the IL-10 family of regulatory cytokines, which includes IL-10, IL-19, IL-20, IL-22, IL-24 and IL-26. Members of this family share partial homology in their amino acid sequences, but they are dissimilar in their biological functions. IL-20 is a hematopoietic growth factor capable of stimulating colony formation by CD34+ multipotential progenitors, but not by other progenitor cells. IL-20 signals through a receptor system composed of type I IL-20Rα and type II IL-20Rβ. Over-expression of IL-20 in keratinocytes expressing both receptor subunits has been implicated in the induction of inflammatory skin disease.		
Research Areas:	Allergy, Immune System, Inflammation		
AA Sequence (monomer):	MLKTLNLGSC VIATNLQEIR NGFSEIRGSV QAKDGNIDIR ILRRTESLQD TKPANRCCLL RHLRLLYLDR VFKNYQTPDH YTLRKISSLA NSFLTIIKKDL RLCHAHMTCH CGEEAMKKYS QILSHFEKLE PQAAVVKALG ELDILLQWME ETE		
Estimated pI:	9.36	Accession #:	Q9NYY1
NCBI Gene ID:	50604		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-20	200-20	35.2 kDa	306

IL-21

Synonyms:

Interleukin-21, Za11

Description:

IL-21 is a pleiotropic cytokine produced by CD4+ T cells in response to antigenic stimulation. Its action generally enhances antigen-specific responses of immune cells. The biological effects of IL-21 include: inducing the differentiation of T-cell-stimulated B-cells into plasma cells and memory B-cells; the stimulation of IgG production in conjunction with IL-4; and the induction of apoptotic effects in naïve B-cells and stimulated B-cells in the absence of T-cell signaling. Additionally, IL-21 promotes the anti-tumor activity of CD8+ T-cells and NK cells. IL-21 exerts its effect through binding to a specific type I cytokine receptor, IL-21R, which also contains the γ chain (γc) found in other cytokine receptors, including IL-2, IL-4, IL-7, IL-9 and IL-15. The IL-21/IL-21R interaction triggers a cascade of events, which includes activation of the tyrosine kinases JAK1 and JAK3, followed by activation of the transcription factors STAT1 and STAT3.

Research Areas:

Apoptosis, Cancer, Immune System, Stem Cells & Differentiation

AA Sequence:

Human IL-21:

MQDRHMIRMRLQLIDIVDQLKNYVNDLVPEFLPAPEDVETNCEWSAFSCFQKAQLKSANTGNNERIINVSIIKKLKRKPPSTNAGRRQKHRLTCPSCDSYEKKPKKEFLERFKSLQKMIHQHLSSRTHGSEDS

Murine IL-21

MHKSSPQGPDRLILRLRHLDIVEQLKIYENDLPELLSA PQDVKGHCEHAFACFQKAKLKPSNPGNNKTFIIDLVAQLRRRLPARRGGKKQKHIACPSCDSEYKRTPKFELERLKWLLQKMIHQHLS

Estimated pI:

Human IL-21: 9.66
Murine IL-21: 9.99

Accession #: Human IL-21: Q9HBE4
Murine IL-21: Q9ES17

NCBI Gene ID:

Human IL-21: 59067
Murine IL-21: 60505

Product Name	Catalog Number	MW	AA
Recombinant Human IL-21	200-21	15.4 kDa	132
Animal-Free Recombinant Human IL-21	AF-200-21	15.4 kDa	132
Recombinant Murine IL-21	210-21	15.0 kDa	130
Animal-Free Recombinant Murine IL-21	AF-210-21	15.0 kDa	130

IL-22

Synonyms:	Interleukin-22, IL-TIF, Cytokine ZCYTO18		
Description:	IL-22 is a member of the IL-10 family of regulatory cytokines, which includes IL-10, IL-19, IL-20, IL-22, IL-24 and IL-26. Members of this family share partial homology in their amino acid sequences, but they are dissimilar in their biological functions. Produced by T lymphocytes, IL-22 inhibits IL-4 production by Th2 cells, and induces acute phase reactants in the liver and pancreas. IL-22 signals through a receptor system consisting of IL-10Rβ/CRF2-4 and IL-22R, both of which are members of the class II cytokine-receptor family.		
Research Areas:	Immune System		
AA Sequence (monomer):			
Human IL-22:	MAPISSHCRL DKSNFQQPYI TNRTFMLAKE ASLADNNTDV RLIGEKLFHG VMSERCYLM KQVLNFTLEE VLFPQSDRFQ PYMQEVVPFL ARLSNRLSTC HIEGDDLHIQ RNVQKLKDTV KKLGESGEIK AIGELDLLFM SLRNACI		
Murine IL-22:	MLPVNTRCKL EVSNFQQPYI VNRTFMLAKE ASLADNNTDV RLIGEKLFHG VSAKDQCYLM KQVLNFTLED VLLPQSDRFQ PYMQEVVPFL TKLSNQLSSC HISGDDQNIQ KNVRRLKETV KKLGESGEIK AIGELDLLFM SLRNACV		
Estimated pI:	Human IL-22: 7.43 Murine IL-22: 8.95	Accession #: Human IL-22: Q9GZX6 Murine IL-22: Q9JJY9	
NCBI Gene ID:	Human IL-22: 50616 Murine IL-22: 50929		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-22	200-22	33.6 kDa	284
Animal-Free Recombinant Human IL-22	AF-200-22	33.6 kDa	284
Recombinant Murine IL-22	210-22	33.4 kDa	294
Animal-Free Recombinant Murine IL-22	AF-210-22	33.4 kDa	294

IL-23

Synonyms:	Interleukin-23		
Description:	IL-23 is a proinflammatory, heterodimeric protein composed of two subunits: a unique p19 subunit, and a p40 subunit that is shared with IL-12. IL-23 is secreted by activated dendritic cells and macrophages, and signals through a receptor comprised of IL-23R complexed with IL-12Rβ2. IL-23 has been shown to enhance proliferation of memory T cells. It also stimulates the production of IFN-γ in NK cells, induces IL-17 production, and drives Th17-mediated responses.		
Research Areas:	Allergy, Cancer, Immune System, Inflammation, Neurobiology		
AA Sequence:			
Human IL-23:			
p19 Subunit:	RAVPGGSSPA WTQCQQLSQK LCTLAWSAHP LVGHMDLREE GDEETTNDVP HIQCGDGCDF QGLRDNSQFC LQRIHQGLIF YEKLLGSDIF TGEPSLLPDS PVGQLHASLL GLSQLLQPEG HHWETQQIPS LSPSQPWQRL LLRFKILRSL QAFVAVAAARV FAHGAATLSP		
p40 Subunit:	IWELKKDVYV VELDWYPDAP GEMVVLTCDT PEEDGITWTL DQSSEVLGSG KTLTIQVKEF GDAGQYTCHK GGEVLSHSLL LLHKKEDGIW STDILKDQKE PKNKTFLRCE AKNYSGRFTC WWLTTISTDL TFSVKSSRGS SDPQGVTCGA ATLSAERVRG DNKEYEYSVE CQEDSACPAA EESLPIEVMV DAVHKLKYEN YTSSFFIRDI IKPDPPKNLQ LKPLKNSRQV EVSWEYPDTW STPHSYFSLT FCVQVQGKSK REKKDRVFTD KTSATVICRK NASISVRAQD RYYSSSWSEW ASVPCS		
Estimated pI:	5.52	Accession #:	p19 subunit: Q9NPF7 p40 subunit: P29460
NCBI Gene ID:	p19 subunit: 51561 p40 subunit: 3593		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-23	200-23	53.5 kDa	476

IL-24

Synonyms:	Interleukin-24, MDA-7 (Melanoma Differentiation-Associated gene 7 protein)		
Description:	IL-24 is a secreted glycoprotein belonging to the IL-10 structural family of cytokines. It is produced by a variety of cell types, including B cells, CD4+ cells, NK cells, lymph node DCs, monocytes, and melanoma cells. IL-24 can signal through the IL20R1/IL20R2 and IL22R1/IL20R2 receptors to initiate a signaling cascade, which includes the induction of JAK1/STAT3 phosphorylation. IL-24 is, functionally, a pleiotropic protein, but is generally characterized as an anti-cancer cytokine that can selectively inhibit growth of a wide variety of human cancer cells through activities that include: the induction of differentiation and apoptosis; and the suppression of angiogenesis and cell proliferation.		
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Cancer, Immune System		
AA Sequence:	QEFHFGPCQV KGVVPQKLWE AFWAVKDTMQ AQDNITSARL LQQEVLQNVS DAESCYLVHT LLEFYLKTVF KNYHNRTVEV RTLKSFSTLA NNFVLIVSQL QPSQENEMFS IRDSAHRRFL LFRRAFKQLD VEAALTKALG EVDILLTWMQ KFYKLHHHHH H		
Estimated pI:	8.82	Accession #:	Q13007
NCBI Gene ID:	11009		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-24	200-35	18.9 kDa	161

IL-27

Synonyms: Interleukin-27, Interleukin-27 subunit alpha, IL-27-A, Interleukin-27 subunit beta, IL-27B, Epstein-Barr virus-induced gene 3 protein, EBV-induced gene 3 protein, EB13, p28, Interleukin-30, IL-30

Description: As a member of the IL-12 family of heterodimeric cytokines that also includes IL-12, IL-23, and IL-35, IL-27 is formed by the association of an IL-27-p28 subunit (also known as IL-30) with the Epstein-Barr Virus (EBV)-induced Gene 3 (EBI3) subunit (also known as IL-27B). Expressed by antigen-presenting cells (APCs) in the early phases of antigen-mediated activation, IL-27 acts as a critical initiator of adaptive immune responses by promoting the rapid clonal expansion of naïve CD4⁺ T cells, IFN- γ production, and Th1 polarization. IL-27 elicits its effects through receptor complexes IL-27R (also known as TCCR/WSX-1) and gp130, a receptor shared by IL-6. Mainly expressed in monocytes, endothelial cells, and dendritic cells, IL-27 plays an important role alongside IL-6 in the regulation of inflammation and autoimmunity; directly antagonizing IL-6's stimulation of CD4⁺ T cell proliferation and Th17 differentiation.

Research Areas: Immune System, Inflammation, Proliferation

AA Sequence:

p28 subunit:

FPRPPGRPQL	SLQELRREFT	VSLHLARKLL	SEVRGQAHRF	AESHLPGVNL	YLLPLGEQLP	DVSLTFQAWR
RLSDPERLCF	ISTTLQPFHA	LLGGLGTQGR	WTNMMERQLW	AMRLDLRLDQ	RHLRFQVLAA	GFNLPEEEEE
EEEEEEEEERK	GLLPALGSA	LQGPAQVSWP	QLLSTYRLH	SLELVLSRAV	RELLLLSKAG	HSVWPLGFPT
LSPQP						

EBI3 subunit: RKGPPAALTL PRVQCRASRY PIAVDCSWTL PPAPNSTSPV SFIATYRLGM AARGHSWPCL QQTPTSTSTCT
ITDVQLFSMA PYVLNVTAVH PWGSSSSFVP FITEHIIKPD PPEGVRLSPL AERQLQVQWE PPGSWPFPEI
FSLKYWIRYK ROGAARFHRV GPIEATSFIL RAVRPRARYY VOVAQAODLTD YGELSWSLSP ATATMSLGK

Estimated pI:	9.41	Accession #:	p28 subunit: Q8NEV9 EBI3 subunit: Q14213
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NCBI Gene ID: p28 subunit: 246778
EBI3 subunit: 10148

Product Name	Catalog Number	MW	AA
Recombinant Human IL-27	200-38	47.8 kDa	424

IL-31

Synonyms:	Interleukin-31		
Description:	IL-31 is a T cell-derived cytokine that shares several structural and functional characteristics with IL-6, Oncostatin M, LIF, and Cardiotrophin-1. It signals through a receptor complex comprised of GPL (also known as gp130-like receptor or IL-31RA) and Oncostatin-M receptor (OSMR). GPL/OSMR signaling is a strong activator of STAT3 and STAT5, and can also activate STAT1, JAK1, and JAK2 signaling pathways. IL-31-regulated immune responses have been implicated in skin physiology and inflammatory skin diseases.		
Research Areas:	Immune System, Inflammation, Stem Cells & Differentiation		
AA Sequence:			
Human IL-31:	SHTLPVRLLR PSDDVQKIVE ELQSLSKMLL KDVEEEKGVL VSQNYTLPCL SPDAQPPNNI HSPAIRAYLK TIRQLDNKSV IDEIIEHLDK LIFQDAPETN ISVPTDTHC KRFILTISQQ FSECMDLALK SLTSGAQQAT T		
Murine IL-31:	MTCSLSFGAP ISKEDLRRTTI DLLKQESQDL YNNYSIKQAS GMSADESIQL PCFSLDREAL TNISVIIAHL EKVKVLSNT VDTSWVIRWL TNISCFNPLN LNISVPGNTD ESYDCKVFVL TVLKQFSNCM AELQAKDNTT C		
Estimated pI:	Human IL-31: 4.97 Murine IL-31: 4.44	Accession #: Human IL-31: Q6EBC2 Murine IL-31: Q6EAL8	
NCBI Gene ID:	Human IL-31: 386653 Murine IL-31: 76399		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-31	200-31	15.8 kDa	141
Recombinant Murine IL-31	210-31	15.8 kDa	141

IL-33

Synonyms:	Interleukin-33, IL-1 F11, NF-HEV		
Description:	Human IL-33 is a proinflammatory protein that shares structural and functional characteristics with the IL-1 cytokine family. It binds and signals through the IL-1RL1/ST2 receptor, to activate NF-κB and MAP kinases. IL-33 induces production of TH2 cell related cytokines, including IL-4, IL-5 and IL-13, and exerts multiple inflammation related bioactivities.		
Research Areas:	Immune System, Inflammation		
AA Sequence:			
Human IL-33:	SITGISPITE YLASLSTYND QSITFALEDE SYEIYVEDLK KDEKKDKVLL SYYESQHPSN ESGDGVGDKM LMVTLSPTKD FWLHANNKEH SVELHKCEKP LPDQAFFVLH NMHSNCVSFE CKTDPGVFIG VKDNHLALIK VDSSENLCTE NILFKLSET		
Murine IL-33:	SIQGTSLLTQ SPASLSTYND QSVSFVLENG CYVINVDDSG KDQEQQQVLL RYYESPCPAS QSGDGVGDKK LMVNMSPIKD TDIWLHANDK DYSVELQRGD VSPPEQAFFV LHKKSSDFVS FECKNLPPTY IGVKDNQLAL VEEKDESCNN IMFKLSKI		
Estimated pI:	Human IL-33: 4.62 Murine IL-33: 4.32	Accession #:	Human IL-33: O95760 Murine IL-33: Q8BVZ5
NCBI Gene ID:	Human IL-33: 90865 Murine IL-33: 77125		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-33	200-33	17.9 kDa	159
Animal-Free Recombinant Human IL-33	AF-200-33	17.9 kDa	159
Recombinant Murine IL-33	210-33	17.5 kDa	158

IL-34

Synonyms:

Interleukin-34, C16orf77

Description:

IL-34 is a homodimeric cytokine that is expressed in a range of tissues that include spleen, heart, brain, liver, kidney, lung, ovary, thymus, testis, small intestine, prostate and colon. IL-34 is a ligand for colony-stimulating factor-1 receptor (CSF1R), which also binds to CSF-1. It specifically binds CD14+ monocytes, promotes survival and proliferation of human peripheral blood monocytes, and stimulates macrophage colony formation by human bone marrow cells. IL-34, like human CSF-1, stimulates phosphorylation of MAPK1/ERK2 and MAPK3/ERK1.

Research Areas:

Bone/Skeletal/Cartilage, Cancer, Immune System, Inflammation

AA Sequence (monomer):

NEPLEMWPLT QNEECTVTGF LRDKLQYRSR LQYMKHYFPI NYKISVPYEG VFRIANVTRL QRAQVSEREL
RYLWVLVSL S ATESVQDVLL EGHPSWKYLQ EVETLLLNQ QGLTDVEVSP KVESVLSLLN APGPNLKLVR
PKALLDNCFR VMELLYCSCC KQSSVLNWQD CEVPSPQSCS PEPSLQYAAT QLYPPPPWSP SSPPHSTGVS
RPVRAQGEGL LPHHHHHHHH

Estimated pI:

6.66

Accession #:

Q6ZMJ4

NCBI Gene ID:

146433

Product Name	Catalog Number	MW	AA
Recombinant Human IL-34	200-34	52.5 kDa	460

IL-35

Synonyms:	Interleukin-35		
Description:	Interleukin-35 is a glycosylated, disulfide-linked, heterodimeric protein consisting of the p35 subunit from IL-12 (IL-12α) and the β subunit from IL-27 (EBI3). IL-35 can be expressed by regulatory T-cells (Tregs), macrophages, and certain trophoblast and dendritic cells. It is induced in response to inflammation, and generally acts as an inflammation suppressor. IL-35 suppresses inflammation by exerting multiple activities, including the induction of regulatory T-cells and the suppression of Th17 cells.		
Research Areas:	Immune System, Inflammation, Stem Cells & Differentiation		
AA Sequence:			
α Subunit:	RNLPVATPDP GMFPCLHHSQ NLLRAVSNML QKARQTLEFY PCTSEEIDHE DITKDKTSTV EACLPLELTK NESCLNSRET SFITNGSCLA SRKTSFMMAL CLSSIYEDLK MYQVEFKTMN AKLLMDPKRQ IFLDQNMLAV IDELMQALNF NSETVPQKSS LEEPDFYKTK IKLCILLHAF RIRAVTIDRV MSYLNAS		
β Subunit:	RKGPPAALTl PRVQCRASRY PIAVDCSWTL PPAPNSTSPV SFIATYRLGM AARGHSWPCL QQTPTSTSTCT ITDVQLFSMA PYVLNVTAVH PWGSSSSFVP FITEHIIKPD PPEGVRLSPL AERQLQVQWE PPGSWPFPEI FSLKYWIRYK RQGAARFHRV GPIEATSFIL RAVRPRARYY VQVAAQDLTD YGELSDWSLP ATATMSLGK		
Estimated pI:	9.20	Accession #: α subunit: P29459 β subunit: Q14213	
NCBI Gene ID:	α subunit: 3592 β subunit: 10148		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-35	200-37	45.8 kDa	406

IL-36α (IL-1F6)

Synonyms:	Interleukin-36α, IL36A, Interleukin-1 family member 6 (IL-1F6), FIL1ε (FIL1E), Interleukin-1ε (IL1E)		
Description:	The IL-1 family is comprised of 11 structurally related ligands, including recently re-named IL-36α (IL-1F6), β (IL-1F8), and γ (IL-1F9). IL-36α is highly expressed in psoriatic plaques, as are IL-36β and IL-36γ, and is the only IL-1 family member found to be expressed by T-cells, as well as monocytes and B-cells. Primarily found in skin and lymphoid tissues, IL-36α is also found to a lesser extent in tissues of the fetal brain, trachea, stomach, and intestine. IL-36α signals through a combination of the IL-1Rrp2 (IL-1R6) receptor, which is primarily expressed on certain dendritic cells, and the widely expressed IL-RAcP (IL-1 receptor accessory protein). IL-36α also functions as an agonist of NF-kappaB and MAPK pathways, and induces the production of pro-inflammatory cytokines and chemokines, including IL-6, IL-8, BD-2, and BD-3.		
Research Areas:	Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology		
AA Sequence:	MKIDTPQQGS IQDINHRVWV LQDQTLIAVP RKDRMSPVTI ALISCRHVET LEKDRGNPIY LGLGNLNLCL MCAKVGDQPT LQLKEKDIMD LYNQPEPVKS FLFYHSQSGR NSTFESVAFP GWFIAVSSEG GCPLILTQEL GKANTTDFGL TMLF		
Estimated pI:	6.14	Accession #:	Q9UBH0
NCBI Gene ID:	14440		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-36α (IL-1F6)	200-36A	17.2 kDa	154

IL-36β (IL-1F8)

Synonyms:	Interleukin-36β, IL-1F8, IL-1H2, IL-1 eta		
Description:	The IL-1 family is comprised of 11 structurally related ligands, including recently re-named IL-36α (IL-1F6), β (IL-1F8) and γ (IL-1F9). IL-36β is highly expressed in psoriatic plaques, and at lower levels in various other tissues. IL-36β signals through the IL-1Rrp2 (IL-1R6) receptor, which is primarily expressed on certain dendritic cells. The interaction of the IL-1Rrp2 receptor with IL-36 ligands induces dendritic cell maturation and activation. IL-36β also functions as an agonist of NF-κB, and stimulates the production of pro-inflammatory proteins, including IL-6, IL-8, BD-2, and BD-3.		
Research Areas:	Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology		
AA Sequence:	MREAAPKSYA IRDSRQMVWV LSGNSLIAAP LRSIKPVTI HLIACRDTEF SDKEKGNMVY LGIKGDLCI FCAEIQGKPT LQLKEKNIMD LYVEKKAQKP FLFFHNKEGS TSVFQSVSYP GWFIATSTTS GQPIFLTKER GITNNTNFYL DSVE		
Estimated pI:	9.30	Accession #:	Q9NZH7
NCBI Gene ID:	27177		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-36β (IL-1F8)	200-36B	17.3 kDa	154

IL-36γ (IL-1F9)

Synonyms:	Interleukin-36γ, IL-1F9, IL-1ε (epsilon) and IL-1H1		
Description:	The IL-1 family is comprised of 11 structurally related ligands, including recently re-named IL-36 α (IL-1F6), β (IL-1F8) and γ (IL-1F9). IL-36γ is highly expressed in psoriatic plaques and in tissues containing epithelial cells. IL-36γ signals through the IL-1Rrp2 (IL-1R6) receptor, which is primarily expressed on certain dendritic cells. The interaction of the IL-1Rrp2 receptor with IL-36 ligands induces dendritic cell maturation and activation. IL-36γ also functions as an agonist of NF-κB, and can stimulate the inflammatory response in bronchial epithelial cells.		
Research Areas:	Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology, Wound Healing		
AA Sequence:	SMCKPITGTI NDLNQQVWTL QGQNLVAVPR SDSVTPVTVA VITCKYPEAL EQGRGDPIYL GIQNP EMCLY CEKVGEQPTL QLKEQKIMDL YGQPEPVKPF LFYRAKTGRT STLESVAFPD WFIASSKRDQ PIILTSELGK SYNTAFELNI ND		
Estimated pI:	4.79	Accession #:	Q9NZH8
NCBI Gene ID:	56300		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-36γ (IL-1F9)	200-36G	17.0 kDa	152
Animal-Free Recombinant Human IL-36γ (IL-1F9)	AF-200-36G	17.0 kDa	152

IL-36RA

Synonyms:	Interleukin-36RA, FIL1 delta, IL-1F5, IL-1HY1, IL-1L1, IL-1RP3, IL-1ra Homolog 1, IL-1 delta		
Description:	The IL-1 family is comprised of 11 structurally related ligands, including the recently re-named IL-36RA (IL-1F5), IL-36 α (IL-1F6), IL-36 β (IL-1F8), and IL-36 γ (IL-1F9). The interaction of IL-36 ligands with the IL-1Rrp2 receptor (IL-1R6) can induce various activities, including dendritic cell maturation and activation. IL-36RA can antagonize the NF- κ B signaling induced by either IL-36 α , β or γ by binding to the IL-1Rrp2 receptor in a manner that prevents the initiation of functional signaling.		
Research Areas:	Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology, Wound Healing		
AA Sequence:			
Human IL-36RA:	VLSGALCFRM KDSALKVLYL HNNQLLAGGL HAGKVIK GEE ISVVPNRWLD ASLSPVILGV QGGSQCLSCG VGQEPTLTLE PVNIMELYLG AKESKSFTFY RRDMGLTSSF ESAAYPGWFL CTVPEADQPV RLTQLPENG G WNA PITDFYF QQCD		
Murine IL-36RA:	VLSGALCFRM KDSALKVLYL HNNQLLAGGL HAEKVIK GEE ISVVPNRALD ASLSPVILGV QGGSQCLSCG TEKGPIKLKLE PVNIMELYLG AKESKSFTFY RRDMGLTSSF ESAAYPGWFL CTSPEADQPV RLTQIPEDPA WDAPITDFYF QQCD		
Estimated pI:	Human IL-36RA: 4.79 Murine IL-36RA: 4.79	Accession #:	Human IL-36RA: Q9UBH0 Murine IL-36RA: Q9QYY1
NCBI Gene ID:	Human IL-36RA: 26525 Murine IL-36RA: 54450		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-36RA	200-36RA	17.0 kDa	154
Animal-Free Recombinant Human IL-36RA	AF-200-36RA	17.0 kDa	154
Recombinant Murine IL-36RA	210-36RA	16.9 kDa	154

IL-37 (IL-1F7)

Synonyms:	Interleukin-37, IL-1F7, IL-1ζ (zeta), IL-1H4		
Description:	The IL-1 family is comprised of 11 structurally related ligands, including recently re-named IL-37 (IL-1F7), which acts as a modulator of the immune response. Reduction of IL-37 synthesis in PBMCs leads to increased production of pro-inflammatory cytokines including IL-1 alpha, IL-1 beta, IL-6 and TNF- alpha. The role of IL-37 as an inhibitor of the innate inflammatory response is also corroborated by the observation that it is highly expressed in synovial tissue from patients with rheumatoid arthritis. Full length IL-37 resides primarily in the cytoplasm, but after activation through cleavage by CASP1, it can translocate to the nucleus where it exerts its activity by direct interaction with SMAD3.		
Research Areas:	Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology		
AA Sequence:	MVHTSPKVKN LNPKKFSIHD QDHKVLVLDS GNLIAVPDKN YIRPEIFFAL ASSLSASAE KGSPILLGVS KGEFCLYCDK DKGQSHPSLQ LKKEKLMKLA AQKESARRPF IFYRAQVGSW NMLESAAHPG WFICTSCNCN EPVGVTDKFE NRKHIEFSFQ PVCKAEMSPS EVSD		
Estimated pI:	9.07	Accession #:	Q9NZH6
NCBI Gene ID:	27178		

Product Name	Catalog Number	MW	AA
Recombinant Human IL-37 (IL-1F7)	200-39	19.4 kDa	174
Animal-Free Recombinant Human IL-37 (IL-1F7)	AF-200-39	19.4 kDa	174

INSL5/INSL7 Hybrid

Synonyms:	None
Description:	The Insulin/Relaxin structural family of proteins consists of at least seven members, each containing an insulin-like heterodimeric structure of two polypeptide chains held together by two inter-chain disulfide bonds. The INSL5/INSL7 hybrid contains the β -chain of INSL7 (Relaxin-3), linked to the α -chain of INSL5. The INSL5/INSL7 hybrid protein can specifically activate the G protein-coupled receptors, GPCR135 and GPCR142, but unlike Relaxin-3, does not induce significant activation of the LGR7 receptor.
Research Areas:	Diabetes/Weight Regulation, Lipid Metabolism, Neurobiology
AA Sequence:	
α -chain:	QDLQTLCCTD GCSMTDLSAL C
β -chain:	RAAPYGVRLC GREFIRAVIF TCGGSRW
Estimated pI:	9.04
	Accession #: α -chain: Q9Y5Q6 β -chain: Q8WXF3
NCBI Gene ID:	α -chain: 10022 β -chain: 117579

Product Name	Catalog Number	MW	AA
Recombinant Human INSL5/INSL7 Hybrid	130-05	5.2 kDa	48

IP-10 (CXCL10)

Synonyms:	Gamma-Interferon Inducible Protein 10, Crg-2		
Description:	IP-10 is a CXC chemokine that signals through the CXCR3 receptor. IP-10 selectively chemoattracts Th1 lymphocytes and monocytes, and inhibits cytokine-stimulated hematopoietic progenitor cell proliferation. Additionally, it is angiostatic and mitogenic for vascular smooth muscle cells.		
Research Areas:	Allergy, Angiogenesis/Cardiovascular, Chemotaxis, Immune System, Inflammation, Neurobiology, Transplantation, Wound Healing		
AA Sequence:			
Human IP-10:	VPLSRTVRCT CISISNPVN PRSLEKLEII PASQFCPRVE IIATMKKKGE KRCLNPESKA IKNLLKAVSK ERSKRSP		
Murine IP-10:	IPLARTVRCT CIHIDGQVVR MRAIGKLEII PASLSCPRVE IIATMKKNDE QRCLNPESKT IKNLMKAFSQ KRSKRAP		
Rat IP-10:	IPLARTVRCT CIDFHEQPLR PRAIGKLEII PASLSCPHVE IIATMKKNNE KRCLNPESEA IKSLLKAVSQ RRSKRAP		
Estimated pI:	Human IP-10: 11.22 Murine IP-10: 11.14 Rat IP-10: 11.11	Accession #:	Human IP-10: PO2778 Murine IP-10: P17515 Rat IP-10: P48973
NCBI Gene ID:	Human IP-10: 3627 Murine IP-10: 15945 Rat IP-10: 245920		

Product Name	Catalog Number	MW	AA
Recombinant Human IP-10 (CXCL10)	300-12	8.6 kDa	77
Recombinant Murine IP-10 (CXCL10)	250-16	8.7 kDa	77
Recombinant Rat IP-10 (CXCL10)	400-33	8.6 kDa	77

Irisin

Synonyms:	Fibronectin type III domain-containing protein 5 (FNDC5), Fibronectin type III repeat-containing protein 2 (FRCP2)
Description:	Irisin is a proteolytic hormone released into circulation by skeletal muscle tissue during acute exercise, and is a derivative of the cleaved plasma membrane protein Fibronectin type III domain containing protein 5 (FNDC5). Found in muscle tissue, FNDC5 is synthesized at increased levels during exercise as a result of the overexpression of the exercise-responsive transcriptional co-activator PGC-1 α (peroxisome proliferator-activated receptor- γ co-activator-1 α). Like its parent polypeptide, Irisin can induce the browning of subcutaneous adipocytes, or the conversion of white adipose tissue (WAT or white fat) into brown (or beige) adipose tissue (BAT or brown fat). Given that brown fat can undergo thermogenesis, or the physiologic process of heat production, Irisin contributes to the metabolic process by increasing thermogenic function and glucose homeostasis. Irisin, thus, represents a link between exercise and “burning” of fats and/or sugars, and consequently may have relevance in the development of new treatments for diabetes and obesity.
Research Areas:	Diabetes/Weight Regulation
AA Sequence (monomer):	DSPSAPVNVTVRHLKANSAVVSWDVLEDEVVIGFAISQQK KDVRMLRFIQ EVNTTTRSCA LWDLEEDTEY IVHVQAISIQ GQSPASEPVL FKTPREAEKM ASKNKDEVTM KE
Estimated pI:	4.81Accession #: Q8NAU1
NCBI Gene ID:	252995

Product Name	Catalog Number	MW	AA
Recombinant Human/Murine/Rat Irisin	100-65	25.2 kDa	112

I-TAC (CXCL11)

Synonyms:	Interferon Inducible T-Cell α Chemokine, B-R1		
Description:	I-TAC is a ‘non-ELR’ CXC chemokine that is regulated by interferon and signals through the CXCR3 receptor. I-TAC is chemoattractant for IL-2 activated T cells, but does not affect freshly isolated un-stimulated T cells, neutrophils, or monocytes.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:			
Human I-TAC:	FPMFKRGRCL CIGPGVKAVK VADIEKASIM YPSNNCDKIE VIITLKENKG QRCLNPKSKQ ARLIIKKVER KNF		
Murine I-TAC:	FLMFKQGRCL CIGPGMKAVK MAEIEKASVI YPSNGCDKVE VIVTMKAHKR QRCLDPRSKQ ARLIMQAIEK KNFLRRQNM		
Estimated pI:	Human I-TAC: 10.34	Accession #:	Human I-TAC: O14625
	Murine I-TAC: 10.77		Murine I-TAC: Q9JHH5
NCBI Gene ID:	Human I-TAC: 6373		
	Murine I-TAC: 56066		

Product Name	Catalog Number	MW	AA
Recombinant Human I-TAC (CXCL11)	300-46	8.3 kDa	73
Animal-Free Recombinant Human I-TAC (CXCL11)	AF-300-46	8.3 kDa	73
Recombinant Murine I-TAC (CXCL11)	250-29	9.0 kDa	79

Kex-2

Synonyms:

Endoproteinase Lys/Arg-Arg

Description:

Proteases (also called Proteolytic Enzymes, Peptidases, or Proteinases) are enzymes that hydrolyze the amide bonds within proteins or peptides. Most proteases act in a specific manner, hydrolyzing bonds at, or adjacent to, specific residues, or a specific sequence of residues contained within the substrate protein or peptide. Proteases play an important role in most diseases and biological processes, including prenatal and postnatal development, reproduction, signal transduction, immune response, various autoimmune and degenerative diseases, and cancer. They are also an important research tool, as they are frequently used in the analysis and production of proteins. Kex-2 cleaves at the carboxyl end of the recognition sequences Arg-Arg/X and Lys-Arg/X.

Research Areas:

Cancer, Immune System

AA Sequence:

LPVPAPPMDS SLLPVKEAED KLSINDPLFE RQWHLVNPSF PGSDINVLDL WYNNITGAGV VAAIVDDGLD
YENEDLKDNF CAEGSWDFND NTNLPKPRLS DDYHGTRCAG EIAAKKGNNF CGVGVGYNAC ISGIRILSGD
ITTEDEAASL IYGLDVNDIY SCSWGPADDG RHLQGPSDLV KKALVKGVTE GRDSKGAIYV FASGNGGTRG
DNCNYDGYTN SIYSITIGAI DHKDLHPPYS EGCSAVMAVT YSSGSGEYIH SSDINGRCSN SHGGTSAAAP
LAAGVYTLLL EANPNLTWRD VQYLSILSAV GLEKNADGDW RDSAMGKKYS HRYGFGKIDA HKLIEMSKTW
ENVNAQTWFY LPTLYVSQST NSTEETLESV ITISEKSLQD ANFKRIEHVT VTVDIDTEIR GTTVDLISP
AGIISNLGVV RPRDVSSEGF KDWTFMSVAH WGENGVGDWK IKVKTENGH RIDFHSWRLK LFGESIDSSK
TETFVFGNDK EEVEPAATES TVSQYSASST SISISATSTS SISIGVETSA IPQTTTASTD PDSDPNTF

Estimated pI:

4.49

Accession #:

P13134

NCBI Gene ID:

855483

Product Name	Catalog Number	MW	AA
Recombinant Yeast Kex-2	450-45	60.4 kDa	558

KGF

Synonyms:

Keratinocyte Growth Factor, Fibroblast Growth Factor-7, HBGF-7

Description:

KGF/FGF-7 is one of 23 known members of the FGF family. Proteins of this family play a central role during pre-natal development, postnatal growth, and the regeneration of a variety of tissues, by promoting cellular proliferation and differentiation. KGF/FGF-7 is a mitogen factor specific for epithelial cells and keratinocytes. KGF/FGF-7 signals through FGFR 2b. KGF/FGF-7 plays a role in kidney and lung development, as well as in angiogenesis and wound healing.

Research Areas:

Angiogenesis/Cardiovascular, Immune System, Stem Cells & Differentiation, Wound Healing

AA Sequence:

CNDMTPEQMA TNVNCSSPER HTRSYDMEG GDIRVRLFC RTQWYLRIDK RGKVKGTQEM KNNYNIMEIR
TVAVGIVAIAK GVESEFYLAM NKEGKLYAKK ECNEDCNFKE LILENHNTY ASAKWTHNGG EMFVALNQKG
IPVRGKKTKK EQKTAHFLPM AIT

Estimated pI:

9.48

Accession #:

P21781

NCBI Gene ID:

2252

Product Name	Catalog Number	MW	AA
Recombinant Human KGF (FGF-7)	100-19	18.9 kDa	163
PeproGMP® Recombinant Human KGF	GMP100-19	18.6 kDa	163

KLF4

Synonyms:

Kruppel-like Factor-4, EZF, GKLF

Description:

KLF4 is a member of the Kruppel-like factor (KLF) family of zinc finger transcription factors. Members of this family share 3 contiguous C2H2-type zinc fingers at the carboxyl terminus that comprise the DNA-binding domain. KLF4 is highly expressed in skin and gut epithelial tissues, but is also found in various other cells and tissues, including vascular endothelial cells, lymphocytes, lung, and testis. It is an important regulator of the cell cycle, transcription, and cell differentiation. Together with Sox2, Oct4, and cMyc, KLF4 can induce the reprogramming of primary human fibroblasts to a pluripotent state. KLF4 and other transcription factors can be introduced into cells by DNA transfection, viral infection, or microinjection. Protein transduction using TAT fusion proteins represents an alternative methodology for introducing transcription factors into primary, as well as transformed, cells.

Research Areas:

Stem Cells & Differentiation

AA Sequence:

MAVSDALLPS FSTFASGPAG REKTLRQAGA PNNRWREELS HMKRLPPVLP GRPYDLAAAT VATDLESGBA
GAACGGSNLA PLPRRETEEF NDLLDLDFIL SNSLTHPPES VAATVSSSAS ASSSSSPSSS GPASAPSTCS
FTYPIRAGND PGVAPGGTGG GLLYGRESAP PPTAPFNLAD INDVSPSGGF VAELLRPELD PVYIPQPPQ
PPGGGLMGKF VLKASLSAPG SEYGSPSVIS VSKGSPDGSH PVVVAPYNGG PPRTCPKIKQ EAVSSCTHLG
AGPPLSNGHR PAAHDFPLGR QLPSRTTPTL GLEEVLSRD CHPALPLPPG FHPHPGPNYP SFLPDQMPPQ
VPPLHYQELM PPGSCMPEEP KPKRGRRSWP RKRTATHTCD YAGCGKTYTK SSKLKAHLRT HTGEKPYHCD
WDGCGWKFAR SDELTRHYRK HTGHRPFQCQ KCDRAFSRSD HLALHMKRHF GGYGRKKRRQ RRR

Estimated pI:

9.78

Accession #:

O43474

NCBI Gene ID:

9314

Product Name	Catalog Number	MW	AA
Recombinant Human KLF4-TAT	110-08	51.7 kDa	483

Klotho

Synonyms:

α Klotho, KLA

Description:

Klotho is a glycosylated protein that plays an important role in the regulation of phosphate and calcium homeostasis. Human Klotho exists in both membrane bound and secreted forms, and is predominantly expressed in the kidney convoluted tubules, and, to a lesser extent, in the brain, reproductive organs, endocrine glands, urinary bladder, skeletal muscle, placenta, and colon. The full length transmembrane form has a large extracellular domain composed of two homologous subunits termed KL1 and KL2, which contain 516 and 439 amino acid residues, respectively. The predominant circulating form, which is derived from alternative RNA splicing, contains the KL1 subunit and constitutes the N-terminal sequence of transmembrane Klotho. A third Klotho protein of about 128 kDa has been identified in the blood and cerebrospinal fluid. This circulating protein arises from the action of an as yet unidentified protease, which cleaves transmembrane Klotho just above and/or within the plasma membrane. Klotho has been shown to play a key role in the signaling cascade of fibroblast growth factor-23 (FGF-23), a bone-derived hormone that acts in the kidney to inhibit phosphate reabsorption and vitamin D biosynthesis. Klotho promotes FGF-23 signaling through binding to FGFRI (IIIc) which converts this canonical FGF receptor into a specific receptor for FGF-23. In the absence of Klotho the function of FGF-23 is literally abolished.

Research Areas:

Angiogenesis/Cardiovascular, Arteriosclerosis, Bone/Skeletal/Cartilage, Immune System, Stem Cells & Differentiation

AA Sequence:

EPGDGAQTWA RFSRPPAPEA AGLFQGTFPD GFLWAVGSAA YQTEGGWQQH GKGASIWDTF THHPLAPPGD
SRNASLPLGA PSPLQPATGD VASDSYNNVF RDTEALRELG VTHYRFSISW ARVLPNGSAG VPNREGLRYY
RRLLERLREL GVQPVVTLYH WDL PQRLQDA YGGWANRALA DHFRDYAELC FRHFGGQVKY WITIDNPYVV
AWHGYATGRL APGIRGSPRL GYLVAHNLLL AHAKVWHLYN TSFRPTQGGQ VSIALSSHWI NPRRMTDHSI
KECQKSLDFV LGWFAKPVFI DGDYPESMKN NLSSILPDFT ESEKKFIKGT ADFFALCFGP TLSFQLLDPH
MKFRQLESPN LRQLLSWIDL EFNHPQIFIV ENGWFVSGTT KRDDAKYMY LKKFIMETLK AIKLDGVDVI
GYTAWSLMDG FEWHRGYSIR RGLFYVDFLS QDKMLLPKSS ALFYQKLIK NGFPPLPENQ PLEGTFFPCDF
AWGVVDNYIQ VSQ LTKPISS LTKPYH

Estimated pI:

8.41

Accession #:

Q9UEF7

NCBI Gene ID:

9365

Product Name	Catalog Number	MW	AA
Recombinant Human Klotho	100-53	58.6 kDa	516

LAG-1 (CCL4L1)

Synonyms:

Lymphocyte Activation Gene-1, ACT-2, T-cell activation-2, HC21

Description:

LAG-1 is CC chemokine that signals through the CCR5 receptor. LAG-1 is identical to MIP-1β (ACT II isotype) except for two amino acid substitutions; arginine for histidine at position 22 and serine for glycine at position 47 of the mature protein. LAG-1 chemoattracts monocytes, and exhibits activity as an HIV-suppressive factor.

Research Areas:

AIDS/HIV, Chemotaxis, Immune System, Wound Healing

AA Sequence:

APMGSDPPTA CCFSYTARKL PRNFVVDYYE TSSLCSQPAV VFQTKRSKQV CADPSESWVQ EYVYDLELN

Estimated pI:

4.56

Accession #: Q8NHW4

NCBI Gene ID:

388372

Product Name	Catalog Number	MW	AA
Recombinant Human LAG-1 (CCL4L1)	300-58	7.7 kDa	69

LD78β (CCL3L1)

Synonyms:	None
Description:	LD78β is a CC chemokine that is closely related to MIP-1α. It signals through the CCR5 receptor and the beta-chemokine receptor, D6. LD78β has been shown to exhibit potent activity in HIV suppression assays.
Research Areas:	AIDS/HIV, Chemotaxis, Immune System, Wound Healing
AA Sequence:	APLAADTPTA CCFSYTSRQI PQNFIADYFE TSSQCSKPSV IFLTKRGRQV CADPSEEWVQ KYVSDLELSA
Estimated pI:	4.56Accession #: P16619
NCBI Gene ID:	6349

Product Name	Catalog Number	MW	AA
Recombinant Human LD78β (CCL3L1)	300-56	7.7 kDa	70

LEC (CCL16)

Synonyms:	Liver-Expressed Chemokine, NCC-4, HCC-4, LMC, LCC-1, MTN-1, IL-10-inducible chemokine		
Description:	LEC is a CC chemokine that can signal through the CCR8 and CCR1 receptors. It is expressed in the liver, spleen, and thymus. LEC is chemotactic towards monocytes and lymphocytes, but not neutrophils.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:	QPKVPEWVNT PSTCCLKYYE KVLPRRLVVG YRKALNCHLP AIIFVTKRNR EVCTNPNDW VQEYIKDPNL PLLPTRNLST VKIITAKNGQ PQLLSQ		
Estimated pI:	9.90	Accession #:	O15467
NCBI Gene ID:	6360		

Product Name	Catalog Number	MW	AA
Recombinant Human LEC (CCL16)	300-44	11.2 kDa	97

Leptin

Synonyms:	Obesity protein (OB)		
Description:	Encoded by the <i>ob (obese)</i> gene, Leptin is an adipose-derived cytokine that suppresses appetite and increases thermogenesis. Leptin exerts its anorectic effect via signaling through a hypothalamic receptor termed OB-R. Leptin has been shown to reduce body weight, food consumption, and plasma glucose levels in various <i>in vivo</i> models.		
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology, Wound Healing		
AA Sequence:			
Human Leptin:	MVPIQKVQDD TKTLIKTIVT RINDISHTQS VSSKQKVTGL DFIPGLHPIL TSKMDQTLA VYQQILTSMPSRNVIQISND LENLRDLLHV LAFSKSCHLP WASGLETLDS LGGVLEASGY STEVVALSRL QGSLQDMLWQLDLSPGC		
Murine Leptin:	MVPIQKVQDD TKTLIKTIVT RINDISHTQS VSAKQKVTGL DFIPGLHPIL SLSKMDQTLA VYQQVLTSLPSQNVLQIAND LENLRDLLHL LAFSKSCSLP QTSGLQKPES LDGVLEASLY STEVVALSRL QGSLQDILQQLDVSPEC		
Rat Leptin:	MVPIHKVQDD TKTLIKTIVT RINDISHTQS VSARQKVTGL DFIPGLHPIL SLSKMDQTLA VYQQILTSLPSQNVLQIAHD LENLRDLLHL LAFSKSCSLP QTRGLQKPES LDGVLEASLY STEVVALSRL QGSLQDILQQLDLSPEC		
Estimated pI:	Human Leptin: 5.68 Murine Leptin: 5.04 Rat Leptin: 5.89	Accession #:	Human Leptin: P41159 Murine Leptin: P41160 Rat Leptin: P50596
NCBI Gene ID:	Human Leptin: 3952 Murine Leptin: 16846 Rat Leptin: 25608		

Product Name	Catalog Number	MW	AA
Recombinant Human Leptin	300-27	16.0 kDa	147
Animal-Free Recombinant Human Leptin	AF-300-27	16.0 kDa	147
Recombinant Murine Leptin	450-31	16.2 kDa	147
Animal-Free Recombinant Murine Leptin	AF-450-31	16.2 kDa	147
Recombinant Rat Leptin	400-21	16.2 kDa	147

Leptin Receptor

Synonyms:	LEP-R, HuB219, Obesity Protein (OB) Receptor, OB-R	
Description:	Encoded for, along with leptin, by the <i>obese (ob)</i> gene, leptin receptor is a single-transmembrane-domain protein of the Type I, or Class I, Cytokine Receptor Family. The full length isoform, OB-Rb, is highly expressed in hypothalamic neurons, T-cells, and the vascular endometrium, and is thought to be the only isoform capable of transducing intracellular signals. Isoform OB-Ra, which is widely distributed at varying levels of expression, demonstrates weak signal activity and has been implicated in the active transport of leptin across the blood-brain barrier. Through ligand-binding with leptin receptor and the subsequent JAK2/STAT3 signaling cascade, the adipose-derived cytokine leptin functions to suppress appetite and increase thermogenesis. Leptin and leptin receptor have also, more recently, been implicated in the regulation of immune function, reproduction, glucose homeostasis, bone metabolism, wound healing, hematopoiesis, and angiogenesis. Mutations of the <i>ob</i> gene, which can result in leptin resistance and the down-regulation of ligand and/or receptor expression, have been connected to obesity and hypothalamic pituitary function in various <i>in vivo</i> models, including human, mouse, and rat.	
Research Areas:	Cancer, Diabetes/Weight Regulation, Immune System, Neurobiology, Wound Healing	
AA Sequence:	FNLSYPITPW RFKLSCMPPN STYDYFLLPA GLSKNTSNSN GHYETAVEPK FNSSGTHFSN LSKTTFHCCF RSEQDRNCSL CADNIEGKTF VSTVNSLVFQ QIDANWNIQC WLKGDCLKFI CYVESLKFNL FRNYNYKVHL LYVLPEVLED SPLVPQKGSF QMVHCNCSVH ECCECLVPVP TAKLNDTLLM CLKITSGGVI FQSPLMSVQP INMVKPDPL GLHMEITDDG NLKISWSSPP LVPFPLQYQV KYSENSTTVI READKIVSAT SLLVDSILPG SSYEVQVRGK RLDGPGIWSW WSTPRVFTTQ DVIYFPPKIL TSVGSNVSFH CIYKKENKIV PSKEIVWWMN LAEKIPQSQY DVVSDHVSQV TFFNLNETKP RGKFTYDAVY CCNEHECHHR YAELYVIDVN INISCETDGY LTKMTCRWST STIQSLAEST LQLRYHRSSL YCSDIPSHP ISEPKDCYLQ SDGFYECIFQ PIFLLSGYTM WIRINHSLGS LDSPPTCVLP DSVVKPLPPS SVKAEITINI GLLKISWEKP VFPENNLQFQ IRYGLSGKEV QWKMYEVYDA KSKSVSLPVP DLCAVYAVQV RCKRLDGLGY WSNWSNPAYT VVMDIKVPMR GPEFWRIING DTMKKEKNVT LLWKPLMKND SLCSVQRYVI NHHTSCNGTW SEDVGNHTKF TFLWTEQAHT VTVLAINSIG ASVANFNLT SWPMSKVNIQ QSLSAYPLNS SCVIVSWILS PSDYKLMYFI IEWKNLNEDG EIKWLRISSS VKKYYIHDHF IPIEKYQFSL YPIFMEGVGK PKIINSFTQD DIEKHQSD	
Estimated pI:	5.68	Accession #: P48357
NCBI Gene ID:	3953	

Product Name	Catalog Number	MW	AA
Recombinant Human Leptin Receptor	300-27R	93.5 kDa	147

LIF

Synonyms:

Leukemia Inhibitory Factor, Differentiation-stimulating factor, D factor, Melanoma-derived LPL inhibitor (MLP-LI), Interleukin 6 family cytokine

Description:

LIF is a pleiotrophic factor produced by multiple cell types, including T cells, myelomonocytic lineages, fibroblasts, liver, heart and melanoma. LIF promotes long-term maintenance of embryonic stem cells by suppressing spontaneous differentiation. Other activities include the stimulation of acute phase protein synthesis by hepatocytes, stimulation of differentiation of cholinergic nerves, and suppression of adipogenesis by inhibiting the lipoprotein lipase in adipocytes. While human LIF is active on mouse cells and is widely used in the maintenance of murine ESC to prevent spontaneous differentiation, mouse LIF is not active on human cells due to its inability to bind to the human LIF receptor.

Research Areas:

Diabetes/Weight Regulation, Immune System, Lipid Metabolism, Neurobiology, Stem Cells & Differentiation

AA Sequence:

Human LIF:

SPLPITPVNA TCAIRHPCHN NLMNQIRSQL AQLNGSANAL FILYYTAQGE PFPNNLDKLC GPNVTDFPPF
HANGTEKAKL VELYRIVVYL GTSLGNITRD QKILNPSALS LHSKLNATAD ILRGLLSNVL CRLCSKYHVG
HVDVTYGPD T SGKDVFQKKK LGCQLLGKYK QIIAVLAQAF

Murine LIF:

SPLPITPVNA TCAIRHPCHG NLMNQIKNQL AQLNGSANAL FISYYTAQGE PFPNNVEKLC APNMTDFPSF
HNGNTEKTKL VELYRMVAYL SASLTNITRD QKVLNPTAVS LQVKLNATID VMRGLLSNVL CRLCNKYRVG
HVDVPPVPDH SDKEAFQRRK LGCQLLGTYK QVISVVVQAF

Estimated pI:

Human LIF: 9.46
Murine LIF: 9.4

Accession #: Human LIF: P15018
Murine LIF: P09056

NCBI Gene ID:

Human LIF: 3976
Murine LIF: 16878

Product Name	Catalog Number	MW	AA
Recombinant Human LIF	300-05	19.7 kDa	180
Animal-Free Recombinant Human LIF	AF-300-05	19.7 kDa	180
Recombinant Murine LIF	250-02	19.9 kDa	180
Animal-Free Recombinant Murine LIF	AF-250-02	19.9 kDa	180

LIGHT

Synonyms:	TNFSF14, HVEM-L, CD258
Description:	LIGHT belongs to the TNF family of ligands, and can signal through the herpes virus entry mediator type A receptor (HVEM, TNFRSF14), LTβR, or bind to a decoy receptor, DcR3. It is expressed in splenocytes, activated PBL, CD8+ tumor infiltrating lymphocytes, granulocytes, and monocytes. LIGHT has the ability to active NF-κB, to co-stimulate the activation of lymphocytes and to induce apoptosis in certain human tumor cells. The human LIGHT gene encodes for a 240 amino acid type II transmembrane protein containing a 37 amino acid cytoplasmic domain, a 21 amino acid transmembrane domain, and a 182 amino acid extracellular domain.
Research Areas:	Apoptosis, Cachexia, Cancer, Immune System, Inflammation
AA Sequence:	
Human LIGHT:	RLGEMVTRLP DGPAGSWEQL IQERRSHEVN PAAHLTGANS SLTGSGGPLL WETQLGLAFL RGLSYHDGAL VVTKAGYYYI YSKVQLGGVG CPLGLASTIT HGLYKRTPRY PEELELLVSQ QSPCGRATSS SRVWWDSSFL GGVVHLEAGE KVVVRVLDER LVRLRDGTRS YFGAFMV
Murine LIGHT:	MRLHQRLGDI VAHLPDGGKG SWEKLIQDQR SHQANPAAHL TGANASLIGI GGPLLWETRL GLAFLRGLTY HDGALVTMEP GYYYVYSKVQ LSGVGCPQGL ANGLPITHGL YKRTSRYPKE LELLVSRRSP CGRANSSRVW WDSSFLGGVV HLEAGEEVVV RVPGNRLVRP RDGTRSYFGA FMV
Estimated pI:	Human LIGHT: 8.98 Murine LIGHT: 9.91
NCBI Gene ID:	Human LIGHT: 8740 Murine LIGHT: 50930
Accession #:	Human LIGHT: O43557 Murine LIGHT: Q9QYH9

Product Name	Catalog Number	MW	AA
Recombinant Human LIGHT	310-09B	19.3 kDa	177
Recombinant Murine LIGHT	315-12	20.1 kDa	183
Animal-Free Recombinant Murine LIGHT	AF-315-12	20.1 kDa	183

Lin28-TAT

Synonyms:	CSDD1, LIN28A, ZCCHC1		
Description:	Lin28 is a RNA-binding protein that belongs to a diverse family of structurally-related transcription factors. Lin28 is found abundantly in embryonic stem cells (ESCs), and to a lesser extent in placenta and testis. Lin28 has been shown to block let-7 microRNA processing and maturation, a necessary step in the differentiation of stem cells and certain cancer cell lines. Together with Sox2, Oct4, and Nanog, Lin28 can induce the reprogramming of primary human fibroblasts to a pluripotent state. Lin28 and other regulatory proteins can be introduced into cells by DNA transfection, viral infection, or microinjection. Protein transduction using TAT fusion proteins represents an alternative methodology for introducing proteins into primary, as well as transformed, cells.		
Research Areas:	Cancer, Stem Cells & Differentiation		
AA Sequence:	GPSVSNQQFA GGCACAAEEA PEEAPEDAAR AADEPQLLHG AGICKWFNVR MGFGFLSMTA RAGVALDPPV DVFVHQSKLH MEGFRSLKEG EAVEFTFKKS AKGLESIRVT GPGGVFCIGS ERRPKGKSMQ KRRSKGDRCY NCGGLDHHAK ECKLPPQPKK CHFCQSISHM VASCPLKAQQ GPSAQGKPTY FEEEEEEIHS PTLLPEAQNG GYGRKKRRQR RR		
Estimated pI:	9.76	Accession #:	Q9H9Z2
NCBI Gene ID:	79727		

Product Name	Catalog Number	MW	AA
Recombinant Human Lin28-TAT	110-06	24.4 kDa	222

Lungkine (CXCL15)

Synonyms:	None		
Description:	Lungkine is a CXC chemokine that is expressed in lung epithelial cells and, to a lesser extent, in certain fetal tissues. No human homolog has been identified, and a specific cell surface receptor has not yet been found. Lungkine expression in lung tissue is elevated in response to inflammation, at which time it acts to specifically recruit neutrophils and direct them into the lung airway.		
Research Areas:	Chemotaxis, Immune System, Inflammation, Wound Healing		
AA Sequence:	QELRCLCIQE HSEFIPLKLI KNIMVIFETI YCNRKEVIAV PKNGSMICLD PDAPWVKATV GPITNRFLPE DLKQKEFFPA MKLLYSVEHE KPLYLSFGRP ENKRIFFFPI RETSRHFADL AHNSDRNFLR DSSEVSLTGS DA		
Estimated pI:	7.30	Accession #:	Q9WVL7
NCBI Gene ID:	20309		

Product Name	Catalog Number	MW	AA
Recombinant Murine Lungkine (CXCL15)	250-37	16.3 kDa	142

Lymphotactin (XCL1)

Synonyms:	SCM-1a, ATAC		
Description:	Lymphotactin is the only known member of the C chemokine family, and signals through the receptor XCR1, formally known as GPR5. The spleen shows the highest level of lymphotactin compared to peripheral leukocytes, lung, colon and small intestine. Lymphotactin is chemotactic towards lymphocytes, but not towards monocytes or neutrophils.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:	GSEVSDKRTC VSLTTQRLPV SRIKTYTITE GSLRAVIFIT KRGLKVCADP QATWVRDVVR SMDRKSNTRN NMIQTKPTGT QQSTNTAVTL TG		
Estimated pI:	11.63	Accession #:	P47992
NCBI Gene ID:	6375		

Product Name	Catalog Number	MW	AA
Recombinant Human Lymphotactin (XCL1)	300-20	10.0 kDa	92

MANF

Synonyms:	Mesencephalic Astrocyte-Derived Neurotrophic Factor, ARMET, Arginine-Rich Protein (ARP)		
Description:	MANF is a secreted neurotrophic factor that is expressed in brain, neuronal and certain non-neuronal tissues. It has been shown to promote the survival, growth and function of dopamine-specific neurons. MANF and its structural homolog CDFN each contain an N-terminal, saposin-like, lipid-binding domain, and a carboxyl-terminal domain that is not homologous to previously characterized protein structures. MANF and CDFN can prevent 6-OHDA-induced degeneration of dopaminergic neurons by triggering survival pathways in a rat experimental model of Parkinson's disease.		
Research Areas:	Neurobiology, Parkinsons, Stem Cells & Differentiation		
AA Sequence:	LRPGDCEVCI SYLGRFYQDL KDRDVTFSFA TIENELIKFC REARGKENRL CYYIGATDDA ATKIINEVSK PLAHHIPVEK ICEKLKKKDS QICELKYDKQ IDLSTVDLKK LRVKELKKIL DDWGETCKGC AEKSDYIRKI NELMPKYAPK AASARTDL		
Estimated pI:	8.94	Accession #:	P55145
NCBI Gene ID:	7873		

Product Name	Catalog Number	MW	AA
Recombinant Human MANF	450-06	18.1 kDa	158

Maspin

Synonyms:	SerpinB5, Protease inhibitor 5							
Description:	Maspin (mammary serine protease inhibitor) is a non-inhibitory serpin that is expressed predominantly in normal mammary epithelial cells, but at significantly reduced levels or absent in most breast carcinomas. It has the ability to block the growth, invasiveness, and metastatic potential of breast and lung tumors. This anti-tumor activity is achieved, in part, by the contribution of maspin to the inhibition of angiogenesis, and its ability to preferentially promote apoptosis of tumor cells.							
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Cancer, Immune System, Wound Healing							
AA Sequence:	MDALQLANSA	FAVDLFKQLC	EKEPLGNVLF	SPICLSTSLA	LAQVGAKGDT	ANEIGQVLHF	ENVKDIPFGF	
	QTVTSDVNKL	SSFYSLKLIK	RLYVDKSLNL	STEFISSTKR	PYAKELETVD	FKDKLEETKG	QINNSIKDLT	
	DGHFENILAD	NSVNDQTKIL	VVNAAYFVGK	WMKKFPESET	KECPFRLNKT	DTKPVQMMNM	EATFCMGNID	
	SINCKIIELP	FQNKHLMSFI	LLPKDVEDES	TGLEKIEKQL	NSESLSQWTN	PSTMANAKVK	LSIPKFKVEK	
	MIDPKACLEN	LGLKHIFSED	TSDFSGMSET	KGVALSNVIH	KVCLEITEDG	GDSIEVPGAR	ILQHKDELNA	
	DHPFIYIIRH	NKTRNIIFFG	KFCSP					
Estimated pI:	5.64			Accession #: P36952				
NCBI Gene ID:	5268							

Product Name	Catalog Number	MW	AA
Recombinant Human Maspin	130-12	42.1 kDa	375

M-CSF

Synonyms:	Macrophage Colony Stimulating Factor, CSF-1, MGI-IM		
Description:	M-CSF is a potent hematopoietic factor produced by a variety of cells, including lymphocytes, monocytes, fibroblasts, endothelial cells, myoblasts and osteoblasts. It is a key regulator of cellular proliferation, differentiation, and survival for blood monocytes, tissue macrophages, and their respective progenitor cells. M-CSF has been shown to play important roles in modulating dermal thickness and fertility. M-CSF is clinically used in the treatment of infection, malignancies and atherosclerosis. It facilitates hematopoietic recovery after bone marrow transplantation. Human M-CSF is reactive in murine systems, but the murine molecule exhibits no activity on human cells.		
Research Areas:	Cancer, Immune System, Stem Cells & Differentiation		
AA Sequence (monomer):			
Human M-CSF:	MEEVSEYCSH MIGSGHLQSL QRLIDSQMET SCQITFEFVD QEQLKDPVCY LKKAFFLLVQD IMEDTMRFRD NTPNAIAIVQ LQELSLRLKS CFTKDYEEDH KACVRTFYET PLQLEKVKV VFNETKNLLD KDNIFSKNC NNSFAECSSQ GHERQSEGS		
Murine M-CSF:	MKEVSEHCSH MIGNGHLKVL QQLIDSQMET SCQIAFEFVD QEQLDDPVCY LKKAFFLVQD IIDETMRFKD NTPNANATER LQELSNLNS CFTKDYEEDH KACVRTFHET PLQLEKIKN FFNETKNLLE KDNIFTKNC NNSFAKCSSR DVVTKP		
Rat M-CSF:	MEVSEHCSHM IGNHGLQILQ QLIDSQMETA CLIEYKFVDQ EQLDDPVCYL KKAFFLVQVI IEETMRFKDN TPNANATERL QELSMKLNCS FIKDYKEQNE ACVQTYKESP LRLLEKIKNF FNETKNFLEK DWNIFSKNCN DSLAKCSSRD VVTKP		
Estimated pI:	Human M-CSF: 4.73 Murine M-CSF: 5.07 Rat M-CSF: 5.10	Accession #: Human M-CSF: P09603 Murine M-CSF: P07141 Rat M-CSF: Q8JZQ0	
NCBI Gene ID:	Human M-CSF: 1435 Murine M-CSF: 12977 Rat M-CSF: 78965		

Product Name	Catalog Number	MW	AA
Recombinant Human M-CSF	300-25	36.8 kDa	318
Animal-Free Recombinant Human M-CSF	AF-300-25	36.8 kDa	318
Recombinant Murine M-CSF	315-02	36.4 kDa	312
Animal-Free Recombinant Murine M-CSF	AF-315-02	36.4 kDa	312
Recombinant Rat M-CSF	400-28	36.2 kDa	310
Animal-Free Recombinant Rat M-CSF	AF-400-28	36.2 kDa	310

MCPs

Synonyms:	Monocyte Chemotactic Protein-1,-2,-3,-4, -5, MCP-1: CCL2, MCAF, JE (murine); MCP-2: CCL8, HC14; MCP-3: CCL7, MARC; MCP-4: CCL13, NCC-1; MCP-5: CCL12		
Description:	The MCP proteins are members of the CC chemokine family that signal through CCR2 and, with the exception of MCP-1, other CCR receptors. The MCP proteins chemoattract and activate monocytes, activated T cells, basophils, NK cells, and immature dendritic cells. The MCP family cross-reacts across species. MCP chemokines contain the four highly conserved cysteine residues present in CC chemokines. The human MCP genes each encode for a 99 amino acid polypeptide (98 a.a. for MCP-4) containing a putative N-terminal signal sequence of 23 amino acids. The mature human protein contains 76 amino acid residues (75 a.a. for MCP-4). The murine and rat homologs of MCP-1 contain an extended C-terminal sequence that results in a mature protein containing 125 amino acid residues. Mature murine MCP-5 contains 82 amino acid residues, including a fifth cysteine residue.		
Research Areas:	Allergy, Angiogenesis/Cardiovascular, Cancer, Chemotaxis, Immune System, Inflammation, Neurobiology, Wound Healing		
AA Sequence (monomer):			
Human MCP-1 (CCL2):	QPDAINAPVT CCYNFTNRKI SVQRLASYRR ITSSKCPKEA VIFKTIVAKE ICADPKQKWV QDSMDHLDKQ TQTPKT		
Murine JE/MCP-1 (CCL2):	QPDAVNAPLT CCYSFTSKMI PMSRLESYKR ITSSRCPKEA VVFVTKLKRE VCADPKKEWV QTYIKNLDRN QMRSEPTTLF KTASALRSSA PLNVKLTRKS EANASTTFST TTSSTSVGVV SVTVN		
Rat MCP-1 (CCL2):	QPDAVNAPLT CCYSFTGKMI PMSRLENYKR ITSSRCPKEA VVFVTKLKRE ICADPNKEWV QKYIRKLDQN QVRSETTVFY KIASLRTSA PLNVNLTHKS EANASTLFST TTSSTSVEVT SMTEN		
Human MCP-2 (CCL8):	QPDSVSIPIT CCFNVINRKI PIQRLESYTR ITNIQCPKEA VIFKTKRGKE VCADPKERWV RDSMKHLDQI FQNLKP		
Murine MCP-2 (CCL8):	GPDKAPVTCC FHVLLKLIPL RVLKSYERIN NIQCPMEAVV FQTKQGMSLC VDPTQKWVSE YMEILDQKSQ ILQP		
Human MCP-3 (CCL7):	QPVGINTSTT CCYRFINKKI PKQRLESYRR TTSSHCPREA VIFKTKLDKE ICADPTQKWV QDFMKHLDKK TQTPKL		
Murine MCP-3 (CCL7):	QPDGPNASTC CYVKKQKIPK RNLKSYRRIT SSRCPWEAVI FKTKKGMEVC AEAHQKWVEE AIAYLDMKTP TPKP		
Human MCP-4 (CCL13):	QPDALNVPST CCFTFSSKKI SLQRLKSYVI TTSRCPQKAV IFRTKLGKEI CADPKEKWVQ NYMKHLGRKA HTLKT		
Murine MCP-5 (CCL12):	GPDAVSTPVT CCYNVVKQKI HVRKLKSYRR ITSSQCPREA VIFRTILDKE ICADPKEKWV KNSINHLDKT SQTFILEPSC LG		
Estimated pI:	Human MCP-1 (CCL2): 9.77	Accession #:	Human MCP-1 (CCL2): P13500
	Murine JE/MCP-1 (CCL2): 10.12		Murine JE/MCP-1 (CCL2): P10148
	Rat MCP-1 (CCL2): 9.63		Rat MCP-1 (CCL2): P14844
	Human MCP-2 (CCL8): 9.93		Human MCP-2 (CCL8): P80075
	Murine MCP-2 (CCL8): 8.99		Murine MCP-2 (CCL8): Q9Z121
	Human MCP-3 (CCL7): 10.05		Human MCP-3 (CCL7): P80098
	Murine MCP-3 (CCL7): 9.86		Murine MCP-3 (CCL7): Q03366
	Human MCP-4 (CCL13): 10.37		Human MCP-4 (CCL13): Q99616
	Murine MCP-5 (CCL12): 9.77		Murine MCP-5 (CCL12): Q62401

MCP’s continued on next page....

MCPs (Continued)

NCBI Gene ID:	Human MCP-1 (CCL2):	6347
	Murine JE/MCP-1 (CCL2):	20296
	Rat MCP-1 (CCL2):	24770
	Human MCP-2 (CCL8):	6355
	Murine MCP-2 (CCL8):	20307
	Human MCP-3 (CCL7):	6354
	Murine MCP-3 (CCL7):	20306
	Human MCP-4 (CCL13):	6357
	Murine MCP-5 (CCL12):	20293

Product Name	Catalog Number	MW	AA
Recombinant Human MCP-1 (CCL2)	300-04	8.6 kDa	76
Animal-Free Recombinant Human MCP-1 (CCL2)	AF-300-04	8.6 kDa	76
Recombinant Murine JE/MCP-1 (CCL2)	250-10	13.8 kDa	125
Recombinant Rat MCP-1 (CCL2)	400-12	14.0 kDa	125
Recombinant Human MCP-2 (CCL8)	300-15	8.9 kDa	76
Animal-Free Recombinant Human MCP-2 (CCL8)	AF-300-15	8.9 kDa	76
Recombinant Murine MCP-2 (CCL8)	250-14	8.5 kDa	74
Recombinant Human MCP-3 (CCL7)	300-17	9.0 kDa	76
Recombinant Murine MCP-3 (CCL7)	250-08	8.5 kDa	74
Recombinant Human MCP-4 (CCL13)	300-24	8.6 kDa	75
Recombinant Murine MCP-5 (CCL12)	250-04	9.3 kDa	82

MD-2/LY96

Synonyms:	Myeloid differentiation protein-2, Lymphocyte antigen 96, ESPO-1		
Description:	Myeloid differentiation protein-2 (MD-2), also referred to as LY69, is an accessory glycoprotein secreted in hematopoietic, nervous, and reproductive tissues at various stages of development where it regulates innate immune responses to microbial pathogens through interaction with the extracellular domains of TLR-2 and TLR-4. The association of MD-2 with the extracellular domain of TLR-4, which is constitutively expressed in cells of the immune system, localizes TLR-4 to the cell surface and forms the TLR-4/MD-2 receptor complex necessary for signal transduction in response to inflammatory signals. The activation of TLR-4/MD-2 begins with the detection of LPS by circulating LPS-Binding Protein (LBP), which in turn facilitates an association between LPS and CD14 for the formation of a CD14/LPS complex that transports and presents LPS to the TLR-4/MD-2 signaling complex, and culminates in the activation of downstream signaling events. MD-2's possession of two dedicated functional domains allows for its simultaneous interaction with both TLR-4 and LPS, the major cell wall component of gram-negative bacteria that acts as the key ligand for TLR-4. Response to LPS is an intricate process that involves several co-stimulatory molecules, including myeloid differentiation factor 88 (MyD88), NF-κB, LBP, and CD14, in addition to TLR-4 and MD-2, and results in the secretion of proinflammatory cytokines and chemokines from the NF-κB, Wnt/β-catenin, and mitogen-activated protein kinase (MAPK) pathways. MD-2 interacts with TLR-2 in a similar, albeit far weaker, manner to initiate immune response to cell wall components of both gram-negative and gram-positive bacteria. Once secreted, MD-2 can polymerize into a heterogeneous collection of large, disulfide-linked oligomers that are each able to bind several TLR-4 molecules, resulting in large clusters localized to the cell surface prior to activation.		
Research Areas:	Allergy, Angiogenesis/Cardiovascular, Apoptosis, Arteriosclerosis, Arthritis, Cancer, Diabetes/Weight Regulation, Immune System, Infection, Inflammation, Proliferation		
AA Sequence:	QKQYWVCNSS DASISYTYCD KMQYPISINV NPCIELKGSK GLLHIFYIPR RDLKQLYFNL YITVNTMNLPRKRKEVICRGS DDYSFCRAL KGETVNTTIS FSFKGIKFSK GKYKCVVEAI SGSPPEMLFC LEFVILHQPN SNHHHHHH		
Estimated pI:	9.03	Accession #: Q9Y6Y9	
NCBI Gene ID:	23643		

Product Name	Catalog Number	MW	AA
Recombinant Human MD-2/LY96	160-07	17.2 kDa	148

MDC (CCL22)

Synonyms:

Macrophage-Derived Chemokine, STCP-1, ABCD-1

Description:

MDC is a CC chemokine that is produced in B cells, macrophages, monocyte-derived dendritic cells, activated NK cells, and CD4 T cells. It signals through the CCR4 receptor. MDC chemoattracts monocytes, dendritic cells and NK cells, and exerts HIV-suppressive activity. The 67 amino acid form of MDC displays reduced chemoattractant activity, but retains HIV-suppressive activity. MDC contains four highly conserved cysteine residues present in the CC chemokines.

Research Areas:

AIDS/HIV, Chemotaxis, Immune System, Wound Healing

AA Sequence:

Human MDC (CCL22) (67 a.a.):

YGANMEDSVC CRDYVRYRLP LRVVKHFWT SDSCPRPGVV LLTFRDKEIC ADPRVPWVKM IILNKLSQ

Human MDC (CCL22) (69 a.a.):

GPYGANMEDS VCCRDYVRYR LPLRVVKHFW WTSDSCPRPG VVLLTFRDKE ICADPRVPWV KMILNKLSQ

Murine MDC (CCL22):

GPYGANVEDS ICCQDYIRHP LPSRLVKEFF WTSKSCRKPG VVLITVKNRD ICADPRQVWV KKLLHKLS

Estimated pI:

Human MDC (CCL22) (67 a.a.): 9.72

Human MDC (CCL22) (69 a.a.): 9.72

Murine MDC (CCL22): 9.96

Accession #:

Human MDC (CCL22) (67 a.a.): O00626

Human MDC (CCL22) (69 a.a.): O00626

Murine MDC (CCL22): O88430

NCBI Gene ID:

Human MDC (CCL22) (67 a.a.): 6367

Human MDC (CCL22) (69 a.a.): 6367

Murine MDC (CCL22): 20299

Product Name	Catalog Number	MW	AA
Recombinant Human MDC (CCL22) (67 a.a.)	300-36	8.0 kDa	67
Recombinant Human MDC (CCL22) (69 a.a.)	300-36A	8.1 kDa	69
Recombinant Murine MDC (CCL22)	250-23	7.8 kDa	68

218

MEC (CCL28)

Synonyms:	Mucosae-associated Epithelial Chemokine, CCK-1		
Description:	MEC is a secreted CC chemokine expressed primarily by epithelial cells of the bronchioles, salivary gland, mammary gland and colon. MEC signals through the CCR10 receptor, and chemoattracts resting CD4, CD8 T-cells and eosinophils. MEC contains six cysteines, including the four highly conserved cysteine residues present in CC chemokines.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:			
Human MEC (CCL28):	SEAILPIASS CTEVSHHIS RRLLEVNMC RIQRADGDCD LAAVILHVKR RRICVSPHNH TVKQWMKVQA AKKNGKGNVC HRKKHHGKRN SNRAHQGKHE TYGHKTPY		
Murine MEC (CCL28):	SEAILPMASS CTEVSHHVS GRLLERVSSC SIQRADGDCD LAAVILHVKR RRICISPHNR TLKQWMRASE VKKNGRENVG SGKKQPSRKD RKGHTTRKHR TRGTHRHEAS R		
Estimated pI:	Human MEC (CCL28): 11.58 Murine MEC (CCL28): 12.14	Accession #: Human MEC (CCL28): Q9NRJ3 Murine MEC (CCL28): Q9JIL2	
NCBI Gene ID:	Human MEC (CCL28): 56477 Murine MEC (CCL28): 56838		

Product Name	Catalog Number	MW	AA
Recombinant Human MEC (CCL28)	300-57	12.3 kDa	108
Recombinant Murine MEC (CCL28)	250-30	12.6 kDa	111

Mesothelin

Synonyms: MPF, MSLN, SMRP, CAK1 antigen, ERC, Pre-pro-megakaryocyte-potentiating factor

Description: Originally identified as a differentiation antigen of mesotheliomas, ovarian cystadenocarcinomas, and pancreatic adenocarcinomas, mesothelin is a glycosylphosphatidylinositol (GPI)-anchored, cell-surface glycoprotein predominantly secreted by cells of the mesothelium. Although mesothelin is expressed at restricted levels by normal mesothelial cells of the pleural, pericardial, and peritoneal membranes, aberrant expression has been documented in the aforementioned cancers, as well as in endometrioid uterine adenocarcinomas and squamous cell carcinomas of the esophagus, stomach, lung, and cervix. Proteolytic cleavage of mesothelin yields a soluble, polypeptide fragment-designated megakaryocyte-potentiating factor (MPF) based on its ability to stimulate megakaryocyte colony-forming activity of murine IL-3 in murine bone marrow cell cultures. Originally isolated from the HPC-Y5 pancreatic cell line, MPF has been suggested to play a role in the proliferation and differentiation of megakaryocytes, and the regulation of resultant platelet production. While the biological functions of both mesothelin and MPF remain speculative, high levels of expression in cancerous tissues, compared to limited distribution in normal tissues, strongly suggests their involvement in tumorigenesis. Both have been demonstrated to promote tumor cell proliferation, migration, anchorage-independent growth, and tumor progression, demonstrating their involvement in heterotypic cell adhesion and the metastatic spread of cancer.

Research Areas: Cancer, Stem Cells & Differentiation

AA Sequence: EVERTACPSG KKAREIDESL IFYKKWELEA CVDAALLATQ MDRVNAIPFT YEQLDVLKHK LDELYPQGYF
ESVIQHLGYL FLKMSPEDIR KWNVTSLETL KALLEVNKGH EMSPQVATLI DRFVKGRGQL DKDTLDTLTA
FYPGYLCSL S PEELSSVPPS SIWAVRPQDL DTCDPQRQLDV LYPKARLAFQ NMNGSEYFVK IQSFLGGAPT
EDLKALSQQN VSMDLATFMK LRTDAVLPLT VAEVQKLLGP HVEGLKAEER HRPVRDWILR QRQDDLDTLG
LGLQGQIPNG YLVLDSLQME ALSGTPCLLG PGPVLTVLAL LLASTLA

Estimated pI: 4.86 **Accession #:** Q13421

NCBI Gene ID: 10232

Product Name	Catalog Number	MW	AA
Recombinant Human Mesothelin	100-63	36.4 kDa	327

MIA

Synonyms:

Melanoma Inhibitory Activity, Cartilage-Derived Retinoic Acid-sensitive Protein (CD-RAP)

Description:

MIA is the first discovered member of a family of secreted cytokines termed the MIA/OTOR family. The four known members of this family, MIA, MIA-2, OTOR and TANGO, each contain a Src homology-3 (SH3)-like domain. MIA is an autocrine growth regulatory protein, secreted from chondrocytes and malignant melanoma cells that promotes melanoma metastasis by binding competitively to fibronectin and laminin in a manner that results in melanoma cell detachment from the extracellular matrix *in vivo*. Elevated levels of MIA may represent a clinically useful marker for diagnosis of melanoma metastasis, as well as a potential marker for rheumatoid arthritis.

Research Areas:

Apoptosis, Arthritis, Cancer, Immune System, Rheumatoid Arthritis

AA Sequence:

MGPMPKLADR KLCADQEC SH PISMAVALQD YMAPDCRFLT IHRGQVVYVF SKLKGRGR LF WGGSVQGDYY
GDLAARLG YF PSSIVREDQT LKPGKVDVKT DKWDFYCQ

Estimated pI:

9.15

Accession #:

Q16674

NCBI Gene ID:

8190

Product Name	Catalog Number	MW	AA
Recombinant Human MIA	130-01	12.2 kDa	108

MIA-2

Synonyms:	Melanoma Inhibitory Activity-2		
Description:	MIA-2 is a secreted cytokine, and a member of the MIA/OTOR family. Members of this family, which also includes MIA, OTOR, and TANGO, share a Src homology-3 (SH3)-like domain. MIA-2 is predominantly expressed in hepatocytes. Elevated levels of MIA-2 may represent a clinically useful marker for diagnosis of hepatic disease activity and severity.		
Research Areas:	Apoptosis, Cancer, Hepatic Disease, Immune System		
AA Sequence:	MLESTKLLAD LKKCGDLECE ALINRVSAMR DYRGPDCRYL NFTKGEEISV YVKLAGERED LWAGSKGKEF GYFPRDAVQI EEVFISEEIQ MSTKESDFLC L		
Estimated pI:	4.50	Accession #:	Q96PC5
NCBI Gene ID:	117153		

Product Name	Catalog Number	MW	AA
Recombinant Human MIA-2	130-02	11.5 kDa	101

Midkine

Synonyms:

MK, NEGF-2

Description:

Midkine (MK) and its functionally-related protein pleiotrophin are heparin-binding neurotrophic factors that signal through the same receptor, known as anaplastic lymphoma kinase (ALK). MK plays an important regulatory role in epithelial-mesenchymal interactions during fetal development and in postnatal lung development. MK chemoattracts embryonic neurons, neutrophils and macrophages, and exerts angiogenic, growth and survival activities during tumorigenesis.

Research Areas:

Angiogenesis/Cardiovascular, Neurobiology, Stem Cells & Differentiation

AA Sequence:

Human Midkine:

VAKKKDKVKK GPGSECAEW AWGPCTPSSK DCGVGFGREGT CGAQTQRIRC RVPCNWKKEF GADCKYKFEN
WGACDGGTGT KVRQGTLLKA RYNAQCQETI RVTKPCTPKT KAKAKAKKGK GKD

Murine Midkine:

VAKKKEKVKK GSECSEWTWG PCTPSSKDCG MGFREGTCGA QTQRVHCKVP CNWKKEFGAD CKYKFESWGA
CDGSTGTKAR QGTLLKARYN AQCQETIRVT KPCTSKTKSK TKAKKGKGKD

Estimated pI:

Human Midkine: 10.23
Murine Midkine: 10.10

Accession #: Human Midkine: P21741
Murine Midkine: P12025

NCBI Gene ID:

Human Midkine: 4192
Murine Midkine: 17242

Product Name	Catalog Number	MW	AA
Recombinant Human Midkine	450-16	13.4 kDa	123
Recombinant Murine Midkine	315-25	13.3 kDa	120

MIF

Synonyms:Macrophage Migration Inhibitory Factor, GLIF, mMIF, GIF, Glycosylation-inhibiting factor

Description:Macrophage migration inhibitory factor (MIF) is a small secreted protein that can act as a pleiotropic pro-inflammatory cytokine, as well as an enzyme. MIF pro-inflammatory activity can be initiated by signaling through CD74 and CD44, resulting in the secretion of TNF- α , IL-1, IL-6, IL-8, and various MMPs. The enzymatic activity of MIF is characterized by its ability to act as a tautomerase, capable of catalyzing the keto-to-enol isomerization of keto-phenylpyruvate and L-dopachrome. It appears as though MIF catalytic activity is dependent upon a trimeric configuration and a free N-terminal proline residue.

Research Areas:Chemotaxis, Immune System, Inflammation

AA Sequence:HHHHHHHHAM PMFIVNTNVP RASVPDGFSL ELTQQLAQAT GKPPQYIAVH VVPDQLMAFG GSSEPCALCS
LHSIGKIGGA QNRSYSKLLC GLLAERLRIS PDRVYINYD MNAANVGWNN STFA

Estimated pI:8.51**Accession #:** P14174

NCBI Gene ID:4282

Product Name	Catalog Number	MW	AA
Recombinant Human MIF	300-69	15.0 kDa	124

MIG (CXCL9)

Synonyms:	Monokine Induced by Interferon-γ		
Description:	MIG, a CXC chemokine, is produced by IFN-γ stimulated monocytes, macrophages and endothelial cells. It signals through the CXCR3 receptor. MIG selectively chemoattracts Th1 lymphocytes, and also exerts other activities, including inhibition of tumor growth, angiogenesis, and inhibition of colony formation of hematopoietic progenitors. Human MIG is active on murine cells. MIG contains four highly conserved cysteine residues present in CXC chemokines		
Research Areas:	Angiogenesis/Cardiovascular, Chemotaxis, Immune System, Inflammation, Transplantation, Wound Healing		
AA Sequence:			
Human MIG (CXCL9):	TPVVRKGRCS CISTNQGTIH LQSLKDLKQF APSPSCEKIE IIATLKNGVQ TCLNPDSADV KELIKKWEKQ VSQKKKQKNG KKHQKKKVLK VRKSQRSRQK KTT		
Murine MIG (CXCL9):	TLVIRNARCS CISTSRGTIH YKSLKDLKQF APSPNCNKTE IIATLKNGDQ TCLDPDSANV KKLKKEWEKK INQKKKQKRG KKHQKNMKNR KPKTFQSRRR SRKTT		
Estimated pI:	Human MIG (CXCL9): 10.59 Murine MIG (CXCL9): 11.35	Accession #: Human MIG (CXCL9): Q07325 Murine MIG (CXCL9): P18340	
NCBI Gene ID:	Human MIG (CXCL9): 4283 Murine MIG (CXCL9): 17329		

Product Name	Catalog Number	MW	AA
Recombinant Human MIG (CXCL9)	300-26	11.7 kDa	103
Recombinant Murine MIG (CXCL9)	250-18	12.2 kDa	105

MIP-1α, -1β

Synonyms:	MIP-1α: Macrophage Inflammatory Protein-1α, LD78α; MIP-1β: Macrophage Inflammatory Protein-1β, ACT-2		
Description:	Both MIP-1α and MIP-1β are structurally and functionally related CC chemokines. They participate in host response to invading bacterial, viral, parasite and fungal pathogens by regulating the trafficking and activation state of selected subgroups of inflammatory cells (e.g. macrophages, lymphocytes and NK cells). While both MIP-1α and MIP-1β exert similar effects on monocytes, their effect on lymphocytes differ; with MIP-1α selectively attracting CD8+ lymphocytes, and MIP-1β selectively attracting CD4+ lymphocytes. Additionally, MIP-1α and MIP-1β have also been shown to be potent chemoattractants for B cells, eosinophils and dendritic cells. Both human and murine MIP-1α and MIP-1β are active on human and murine hematopoietic cells.		
Research Areas:	AIDS/HIV, Chemotaxis, Immune System, Inflammation, Neurobiology, Transplantation, Wound Healing		
AA Sequence:			
Human MIP-1α (CCL3):	ASLAADTPTA CCFSYTSRQI PQNFIADYFE TSSQCSKPGV IFLTKRSRQV CADPSEEWVQ KYVSDLELSA		
Murine MIP-1α (CCL3):	APYGADTPTA CCFSYSRKIP RQFIVDYFET SSLCSQPGVI FLTKRNRQIC ADSKETWVQE YITDLELNA		
Rat MIP-1α (CCL3):	APYGADTPTA CCFSYGRQIP RKFIADYFET SSLCSQPGVI FLTKRNRQIC ADPKETWVQE YITELELNA		
Human MIP-1β (CCL4):	APMGSDPPTA CCFSYTARKL PHNFVVDYEE TSSLCSQPAV VFQTKRGKQV CADPSESQVQ EYVDLELN		
Murine MIP-1β (CCL4):	APMGSDPPTS CCFSYTSRQL HRSFVMDYEE TSSLCSKPAV VFLTKRGRQI CANPSEPWVT EYMSDLELN		
Rat MIP-1β (CCL4):	APIGSDPPTS CCFSYTSRKI HRNFVMDYEE TSSLCSQPAV VFLTKKGRQI CADPSEPWVN EYVNDLELN		
Estimated pI:	Human MIP-1α (CCL3): 4.56 Murine MIP-1α (CCL3): 4.94 Rat MIP-1α (CCL3): 4.98 Human MIP-1β (CCL4): 4.55 Murine MIP-1β (CCL4): 4.55 Rat MIP-1β (CCL4): 4.90	Accession #:	Human MIP-1α (CCL3): P10147 Murine MIP-1α (CCL3): P10855 Rat MIP-1α (CCL3): P50229 Human MIP-1β (CCL4): P13236 Murine MIP-1β (CCL4): P14097 Rat MIP-1β (CCL4): P50230
NCBI Gene ID:	Human MIP-1α (CCL3): 6348 Murine MIP-1α (CCL3): 20302 Rat MIP-1α (CCL3): 25542 Human MIP-1β (CCL4): 6351 Murine MIP-1β (CCL4): 20303 Rat MIP-1β (CCL4): 116637		

Product Name	Catalog Number	MW	AA
Recombinant Human MIP-1α (CCL3)	300-08	7.8 kDa	70
Animal-Free Recombinant Human MIP-1α (CCL3)	AF-300-08	7.8 kDa	70
Recombinant Murine MIP-1α (CCL3)	250-09	7.8 kDa	69
Recombinant Rat MIP-1α (CCL3)	400-15	7.8 kDa	69
Recombinant Human MIP-1β (CCL4)	300-09	7.6 kDa	69
Recombinant Murine MIP-1β (CCL4)	250-32	7.8 kDa	69
Recombinant Rat MIP-1β (CCL4)	400-09	7.8 kDa	69

MIP-1γ (CCL9/CCL10)

Synonyms:	Macrophage Inflammatory Protein-1γ, MRP2, CCF18		
Description:	MIP-1γ is a CC chemokine found in murine blood and a wide variety of murine tissues, with no known human homolog. MIP-1γ signals through the CCR1 receptor. MIP-1γ chemoattracts neutrophils, and also inhibits colony formation of bone marrow myeloid immature progenitors. MIP-1γ contains six cysteines, including the four highly conserved cysteine residues present in CC chemokines.		
Research Areas:	Cancer, Hypertension		
AA Sequence:	QITHATETKE VQSSLKAQQG LEIEMFHMGF QDSSDCCLSY NSRIQCSRFI GYFPTSGGCT RPGIIFISKR GFQVCANPSD RRVQRCIERL EQNSQPRTYK Q		
Estimated pI:	9.80	Accession #:	P51670
NCBI Gene ID:	20308		

Product Name	Catalog Number	MW	AA
Recombinant Murine MIP-1γ (CCL9/CCL10)	250-12	11.6 kDa	101

MIP-2

Synonyms:

Macrophage Inflammatory Protein-2

Description:

Viral MIP-2 (vMIP-2) is a chemokine analog encoded by the human herpes virus, and has been shown to have antagonist activity towards several chemokine receptors. Recombinant Viral MIP-2 is a 7.9 kDa protein consisting of 70 amino acids, including the four highly conserved cysteine residues present in CC chemokines.

Research Areas:

Angiogenesis/Cardiovascular, Chemotaxis, Immune System, Inflammation, Neurobiology, Wound Healing

AA Sequence:

LGASWHRPDK CCLGYQKRPL PQVLLSSWYP TSQLCSKPGV IFLTKRGRQV CADKSKDWVK KLMQQLPVTA

Estimated pI:

10.46

Accession #:

Q98157

NCBI Gene ID:

4961514

Product Name	Catalog Number	MW	AA
Recombinant Viral MIP-2	350-03	7.9 kDa	70

MIP-3 (CCL23)

Synonyms:	Macrophage Inflammatory Protein-3, MPIF-1, Ck-β8		
Description:	MIP-3 is a CC chemokine that signals through the CCR1 receptor. MIP-3 chemoattracts monocytes, resting T lymphocytes, and neutrophils, but does not chemoattract activated lymphocytes. Additionally, MIP-3 has been shown to inhibit colony formation of bone marrow myeloid immature progenitors.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:	RVTKDAETEF MMSKLPLENP VLLDRFHATS ADCCISYTPR SIPCSLLESY FETNSECSKP GVIFLTKKGR RFCANPSDKQ VQVCMRMLKL DTRIKTRKN		
Estimated pI:	9.77	Accession #: P55773	
NCBI Gene ID:	6368		

Product Name	Catalog Number	MW	AA
Recombinant Human MIP-3 (CCL23)	300-29	11.3 kDa	99

MIP-3α (CCL20)

Synonyms:	Macrophage Inflammatory Protein-3α, LARC, Exodus-1		
Description:	MIP-3α is a CC chemokine, expressed in the liver, lymph nodes, appendix, PBL and lungs that can signal through the CCR6 receptor. MIP-3α is chemotactic towards lymphocytes and dendritic cells. Additionally, it promotes the adhesion of memory CD4+ T cells, and inhibits colony formation of bone marrow myeloid immature progenitors.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:			
Human MIP-3α (CCL20):	ASNFDCCCLGY TDRILHPKFI VGFTTRQLANE GCDINAIIFH TKKKLSVCAN PKQTWVKYIV RLSSKKVKNM		
Murine MIP-3α (CCL20):	ASNYDCCLSY IQTPLPSRAI VGFTTRQMADE ACDINAIIFH TKKRKSVCAD PKQNWVKRAV NLLSLRVKKM		
Estimated pI:	Human MIP-3α (CCL20): 10.02	Accession #:	Human MIP-3α (CCL20): P78556
	Murine MIP-3α (CCL20): 10.17		Murine MIP-3α (CCL20): O89093
NCBI Gene ID:	Human MIP-3α (CCL20): 6364		
	Murine MIP-3α (CCL20): 20297		

Product Name	Catalog Number	MW	AA
Recombinant Human MIP-3α (CCL20)	300-29A	8.0 kDa	70
Recombinant Murine MIP-3α (CCL20)	250-27	7.9 kDa	70

MIP-3β (CCL19)

Synonyms:	Macrophage Inflammatory Protein-3β, ELC, Exodus-3, SCYA19		
Description:	MIP-3β is a CC chemokine, expressed in the thymus, lymph nodes, and in activated bone marrow stromal cells that signals through the CCR7 receptor. MIP-3β is a chemoattractant for T and B lymphocytes, and myeloid progenitor cells. Human MIP-3β is active on murine cells.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:			
Human MIP-3β (CCL19):	GTNDAEDCCL SVTQKPIPGY IVRNFHYLLI KDGCRVPAVV FTTLRGRQLC APPDQPWVER IIQRLQRTSA KMKRRSS		
Murine MIP-3β (CCL19):	GANDAEDCCL SVTQRPIPGN IVKAFRYLLN EDGCRVPAVV FTTLRGYQLC APPDQPWVDR IIRRLKKSSA KNKGNSTRRS PVS		
Estimated pI:	Human MIP-3β (CCL19): 11.11 Murine MIP-3β (CCL19): 10.62	Accession #:	Human MIP-3β (CCL19): Q99731 Murine MIP-3β (CCL19): O70460
NCBI Gene ID:	Human MIP-3β (CCL19): 6363 Murine MIP-3β (CCL19): 24047		

Product Name	Catalog Number	MW	AA
Recombinant Human MIP-3β (CCL19)	300-29B	8.8 kDa	77
Recombinant Murine Murine MIP-3β (CCL19)	250-27B	9.2 kDa	83

MIP-4 (CCL18)

Synonyms:

Macrophage Inflammatory Protein-4, PARC, DC-CK1, AMAC-1

Description:

MIP-4 is a CC chemokine that is expressed in lymph nodes, lungs, placenta and bone marrow. MIP-4’s primary receptor is unknown. MIP-4 chemoattracts lymphocytes, and has been shown to exert activity on both CD4+ and CD8+ T cells.

Research Areas:

Chemotaxis, Immune System, Wound Healing

AA Sequence (monomer):

QVGTNKELCC LVYTSWQIPQ KFIVDYSETS PQCPKPGVIL LTKRGRQICA DPNKKWVQKY ISDLKLNA

Estimated pI:

9.64

Accession #:

P55774

NCBI Gene ID:

6362

Product Name	Catalog Number	MW	AA
Recombinant Human MIP-4 (CCL18)	300-34	7.8 kDa	68

MIP-5 (CCL15)

Synonyms:	Macrophage Inflammatory Protein-5, HCC-2, Lkn-1		
Description:	MIP-5 is a CC chemokine that is expressed in the heart, skeletal muscle and adrenal gland. MIP-5 primarily signals through the CCR1 receptor, but has also been found to bind to CCR3. MIP-5 is chemotactic towards T cells and monocytes.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:	QFTNDAETEL MMSKLPLENP VVLNSFHFAA DCCTSYISQS IPCSLMKSYF ETSSECSKPG VIFLTKKGRQ VCAKPSGPGV QDCMKKLPY SI		
Estimated pI:	8.87	Accession #:	Q16663
NCBI Gene ID:	6359		

Product Name	Catalog Number	MW	AA
Recombinant Human MIP-5 (CCL15)	300-43	10.1 kDa	92

MMP-1

Synonyms:	Matrix Metalloproteinase-1, Fibroblast Collagenase, Interstitial Collagenase		
Description:	Matrix metalloproteinases (MMPs) are a family of endoproteases that require zinc and calcium for expressing catalytic activity. These enzymes play a central role in the maintenance and remodeling of the extracellular matrix. Elevated expression of their activity, caused either by up-regulation of their expression or down-regulation of their cognate inhibitors, has been implicated in various degenerative disorders, including arthritis, cardiovascular disease, skeletal growth-plate disorders, and cancer metastasis. MMP-1 is a secreted collagenase with specificity toward Type I, II, III, VII, and X collagens.		
Research Areas:	Angiogenesis/Cardiovascular, Arthritis, Bone/Skeletal/Cartilage, Cancer, Immune System, Inflammation, Wound Healing		
AA Sequence:	MFVLTEGNPR WEQTHLTYRI ENYTPDLPRA DVDHAIEKAF QLWSNVTPLT FTKVSEGQAD IMISFVRGDH RDNSPFDGPG GNLAHAFQPG PGIGGDAHFD EDERWTNNFR EYNLHRVAAH ELGHSGLGLSH STDIGALMYP SYTFSGDVQL AQDDIDGIQA IYGRSQNPVQ PIGPQTPKAC DSKLTFDAIT TIRGEVMFFK DRFYMRTNPF YPEVELNFIS VFWPQLPNGL EAAYEFADRD EVRFFKG NKY WAVQGQNV LH GYPKDIYSSF GFPRTVKHID AALSEENTGK TYFFVANKYW RYDEYKRSMD PGYPKMIAHD FPGIGHKVDA VFMKDGFFYF FHGTRQYKFD PKTKRILTLQ KANSWFNCRK N		
Estimated pI:	6.17	Accession #: P03956	
NCBI Gene ID:	4312		

Product Name	Catalog Number	MW	AA
Recombinant Human MMP-1	420-01	42.7 kDa	371

MMP-2

Synonyms:	Matrix Metalloproteinase-2, Gelatinase A, TBE-1							
Description:	Matrix metalloproteinases (MMPs) are a family of endoproteases that require zinc and calcium for expressing catalytic activity. These enzymes play a central role in the maintenance and remodeling of the extracellular matrix. Elevated expression of their activity, caused either by up-regulation of their expression or down-regulation of their cognate inhibitors, has been implicated in various degenerative disorders, including arthritis, cardiovascular disease, skeletal growth-plate disorders, and cancer metastasis. MMP-2 is a secreted collagenase with specificity toward Type IV, V, VII, and X collagens.							
Research Areas:	Angiogenesis/Cardiovascular, Arthritis, Bone/Skeletal/Cartilage, Cancer, Immune System, Inflammation, Wound Healing							
AA Sequence:	MYNFFPRKPK WDKNQITYRI IGYTPDLDE TVDDAFARAF QVWSDVTPLR FSRIHDGEAD IMINFGRWEH GDGYFPDGKD GLLAHAFAPG TGVGGDSHFD DDELWTLGEG QVVRVKYGNA DGEYCKFPFL FNGKEYNSCT DTGRSDGFLW CSTTYNFEKD GKYGFCPHEA LFTMGGNAEG QPCKFPFRFQ GTSYDSCTTE GRTDGYRWCG TTEDYDRDKK YGFCPETAMS TVGGNSEGAP CVFPFTFLGN KYESCTSAGR SDGKMWCATT ANYDDDRKWG FCPDQGYSLF LVAAHEFGHA MGLEHSQDPG ALMAPIYTYT KNFRLSQDDI KGIQELYGAS PDIDLGTGPT PTLGPVTPEI CKQDIVFDGI AQIRGEIFFF KDRFIWRTVT PRDKPMGPLL VATFWPELPE KIDAVYEAPQ EEKAVFFAGN EYWIYSASTL ERGYPKPLTS LGLPPDVQRV DAAFNWSKNK KTYIFAGDKF WRYNEVKKKM DPGFPKLIAD AwnaIPDNLD AVVDLQGGGH SYFFKGAYYL KLENQSLKSV KFGSIKSDLW GC							
Estimated pI:	4.84		Accession #: P08253					
NCBI Gene ID:	4313							

Product Name	Catalog Number	MW	AA
Recombinant Human MMP-2	420-02	62.0 kDa	552

MMP-3

Synonyms:	Matrix Metalloproteinase-3, Stromelysin-1, SL-1, Transin-1							
Description:	Matrix metalloproteinases (MMPs) are a family of endoproteases that require zinc and calcium for expressing catalytic activity. These enzymes play a central role in the maintenance and remodeling of the extracellular matrix. Elevated expression of their activity, caused either by up-regulation of their expression or down-regulation of their cognate inhibitors, has been implicated in various degenerative disorders, including arthritis, cardiovascular disease, skeletal growth-plate disorders, and cancer metastasis. MMP-3 degrades fibronectin, laminin, collagens III, IV, and X, and cartilage proteoglycans.							
Research Areas:	Angiogenesis/Cardiovascular, Arthritis, Bone/Skeletal/Cartilage, Cancer, Immune System, Inflammation, Wound Healing							
AA Sequence:	MRTFPGIPKW RKTHLTYRIV NYTPDLPKDA VDSAVEKALK VWEEVTPLTF SRLYEGEADI MISFAVREHG DFYFPDGPNG VLAHAYAPGP GINGDAHFDG DEQWTKDTTG TNLFLVAAHE IGHSGLGLFHS ANTEALMYPL YHSLTDLTRF RLSQDDINGI QSLYGPPPS PETPLVPTEP VPPEPGTPAN CDPALSFDAV STLARGEILIF KDRHFWRKSL RKLEPELHLI SSFWPSLPSG VDAAYEVTSK DLVFIFKGNQ FWAIRGNEVR AGYPRGIHTL GFPPTVRKID AAISDKEKNK TYFFVEDKYW RFDEKRNSME PGFPKQIAED FPGIDSKIDA VFEEFGFFFYF FTGSSQLEFD PNAKKVTHTL KSNSWLNC							
Estimated pI:	5.21		Accession #: P08254					
NCBI Gene ID:	4314							

Product Name	Catalog Number	MW	AA
Recombinant Human MMP-3	420-03	42.8 kDa	378

MPF

Synonyms:	Mesothelin, MSLN, SMRP, CAK1 antigen, Pre-pro-megakaryocyte-potentiating factor		
Description:	Originally identified as a differentiation antigen of mesotheliomas, ovarian cystadenocarcinomas, and pancreatic adenocarcinomas, Mesothelin is a glycosylphosphatidylinositol (GPI)-anchored, cell-surface glycoprotein predominantly secreted by cells of the mesothelium. Although Mesothelin is expressed at restricted levels by normal mesothelial cells of the pleural, pericardial, and peritoneal membranes, aberrant expression has been documented in the aforementioned cancers, as well as in endometriod uterine adenocarcinomas and squamous cell carcinomas of the esophagus, stomach, lung, and cervix. Proteolytic cleavage of Mesothelin yields a soluble, polypeptide fragment designated megakaryocyte potentiating factor (MPF) based on its ability to stimulate megakaryocyte colony-forming activity of murine interleukin-3 in murine bone marrow cell cultures. Originally isolated from the HPC-Y5 pancreatic cell line, MPF has been suggested to play a role in the proliferation and differentiation of megakaryocytes, and the regulation of resultant platelet production. While the biological functions of both Mesothelin and MPF remain speculative, high-levels of expression in cancerous tissues compared to limited distribution in normal tissues strongly suggests their involvement in tumorigenesis. Both have been demonstrated to promote tumor cell proliferation, migration, anchorage-independent growth, and tumor progression; demonstrating their involvement in heterotypic cell adhesion and the metastatic spread of cancer.		
Research Areas:	Cancer, Stem Cells & Differentiation		
AA Sequence:	LAGETGQEAA PLDGVLANPP NISSLSPRQL LGFPCA EVSG LSTERVRELA VALAQKNVKL STEQLRCLAH RLSEPPEDLD ALPLDLLLFL NPDAFSGPQA CTRFFSRITK ANVDLLPRGA PERQRLLPAA LACWGVRGSL LSEADVRLG GLACDLPGRF VAESAEVLLP RLVSCPGPLD QDQQEAAARA LQGGGPPYGP PSTWSVSTMD ALRGLLPVLG QPIIRSIPQG IVAAWRQRSS RDPWRQPER		
Estimated pI:	5.88	Accession #:	Q13421
NCBI Gene ID:	10232		

Product Name	Catalog Number	MW	AA
Recombinant Human MPF	100-62	26.7 kDa	250

Myostatin

Synonyms:	GDF-8	
Description:	Myostatin is a TGF-β family member that acts as an inhibitor of skeletal muscle growth. This muscle-specific cytokine interacts with Activin type I and type II receptors, and suppresses myoblast proliferation by arresting cell-cycle in the G1 phase. Suppression of myostatin activity facilitates muscle formation, and may be useful in reducing and/or preventing adiposity and type-2 diabetes. Myostatin activity can be blocked by the activin-binding protein follistatin, and by the propeptide of myostatin. The amino acid sequence of mature myostatin is extremely conserved across species, and is the same in murine, rat, chicken, turkey, porcine, and human. Myostatin is expressed as the C-terminal part of a precursor polypeptide, which also contains a short N-terminal signal sequence for secretion, and a propeptide of 243 amino acids. After dimerization of this precursor, the covalent bonds between the propeptide and the mature ligand are cleaved by furin-type proteases. However, the resulting two proteins remain associated through non-covalent interactions, and are secreted as a latent complex.	
Research Areas:	Angiogenesis/Cardiovascular, Bone/Skeletal/Cartilage, Diabetes/Weight Regulation, Immune System, Stem Cells & Differentiation	
AA Sequence (monomer):	DFGLDCDEHS TESRCCRYPL TVDFEAFGWD WIIAPKRYKA NYCSGECEFV FLQKYPHTHL VHQANPRGSA GPFCTPTKMS PINMLYFNGK EQIIYGKIPA MVVDRCGCS <i>*Cysteine-73 (Pink) is used for an inter-chain disulfide bridging</i>	
Estimated pI:	6.49	Accession #: O14793
NCBI Gene ID:	2660	

Product Name	Catalog Number	MW	AA
Recombinant Human/Murine/Rat Myostatin	120-00	25.0 kDa	218

Myostatin-Propeptide

Synonyms:	None		
Description:	Mature Myostatin is obtained by proteolytic processing of a biologically-inactive precursor protein, which contains an N-terminal propeptide of 243 amino acid residues. Myostatin-Propeptide exhibits high binding affinity for myostatin, and has been shown to be a potent inhibitor of myostatin. Over-expression of myostatin-propeptide in mice resulted in large increases (up to 200%) in skeletal muscle mass, similar to those observed in myostatin knockout mice.		
Research Areas:	Angiogenesis/Cardiovascular, Bone/Skeletal/Cartilage, Diabetes/Weight Regulation		
AA Sequence (monomer):	MNENSEQKEN VEKEGLCNAC TWRQNTKSSR IEAIKIQILS KLRLETAPNI SKDVIRQLLP KAPPLRELID QYDVQRDDSS DGSLEDDDYH ATTETIITMP TESDFLMQVD GKPKCCFFKF SSKIQYNKVV KAQLWIYLRP VETPTTVFVQ ILRLIKPMKD GTRYTGIRSL KLDMNPGTGI WQSIDVKTVL QNWLKQPESN LGIEIKALDE NGHDLAVTFP GPGEDGLNPF LEVKVTDTPK RSRR		
Estimated pI:	6.21	Accession #: O14793	
NCBI Gene ID:	2660		

Product Name	Catalog Number	MW	AA
Recombinant Human Myostatin-Propeptide	120-12	27.8 kDa	244

Nanog

Synonyms:	None
Description:	Nanog is a regulatory protein that is associated with undifferentiated pluripotent cells. The expression of nanog, which is suppressed in all adult tissues, is restricted to embryonic stem cells and to certain pluripotent cancer cells. Decreased expression of nanog is strongly correlated with cell differentiation. Nanog, most likely, acts as an intracellular regulator that helps maintain pluripotency and self renewal via a STAT3-independent pathway. The introduction of nanog, along with Sox2, Oct4, and Lin28, into primary human fibroblasts was sufficient to confer a pluripotent state upon the fibroblast genome. The reprogrammed cells thus obtained resemble ESC in morphology and gene expression. Protein transduction using TAT fusion proteins represents an alternative methodology for introducing transcription factors into primary, as well as transformed, cells.
Research Areas:	Stem Cells & Differentiation
AA Sequence:	
Human Nanog:	SVDPACPQSL PCFEASDCKE SSPMPVICGP EENYPSLQMS SAEMPHTETV SPLPSSMDLL IQDSPDSSTS PKGKQPTSAE NSVAKKEDKV PVKKQKTRTV FSSTQLCVLN DRFQRQKYL S LQQMQELSNI LNLSYKQVKT WFQNQRMKSK RWQKNNWPKN SNGVTQKASA PTYPSLYSSY HQGCLVNPTG NLPMWSNQTW NNSTWSNQTQ NIQSWSNHSW NTQTWCTQSW NNQAWNSPFY NCGEESLQSC MQFQPNSPAS DLEAALEAAG EGLNVIQQT RYFSTPQTMD LFLNYSMNMQ PEDV
Human Nanog-TAT	SVDPACPQSL PCFEASDCKE SSPMPVICGP EENYPSLQMS SAEMPHTETV SPLPSSMDLL IQDSPDSSTS PKGKQPTSAE NSVAKKEDKV PVKKQKTRTV FSSTQLCVLN DRFQRQKYL S LQQMQELSNI LNLSYKQVKT WFQNQRMKSK RWQKNNWPKN SNGVTQKASA PTYPSLYSSY HQGCLVNPTG NLPMWSNQTW NNSTWSNQTQ NIQSWSNHSW NTQTWCTQSW NNQAWNSPFY NCGEESLQSC MQFQPNSPAS DLEAALEAAG EGLNVIQQT RYFSTPQTMD LFLNYSMNMQ PEDVGGYGRK KRRQRRR
Estimated pI:	Human Nanog: 5.93 Human Nanog-TAT: 9.21
NCBI Gene ID:	Human Nanog: 79923 Human Nanog-TAT: 79923
Accession #:	Human Nanog: Q9H9S0 Human Nanog-TAT: Q9H9S0

Product Name	Catalog Number	MW	AA
Recombinant Human Nanog	120-21	34.7 kDa	304
Recombinant Human Nanog-TAT	120-21B	36.1 kDa	317

NAP-2 (CXCL7)

Synonyms:	Neutrophil Activating Protein-2, PBP (parent molecule), CTAP-III (precursor)
Description:	NAP-2 is a CXC chemokine that can signal through the CXCR1 and CXCR2 receptors. It is produced in leukocytes by enzymatic processing of a precursor called platelet basic protein (PBP). NAP-2 chemoattracts and activates neutrophils.
Research Areas:	Chemotaxis, Immune System, Wound Healing
AA Sequence:	AELRCMCIKT TSGIHPKNIQ SLEVIGKGTH CNQVEVIATL KDGRKICLDP DAPRIKKIVQ KKLAGDESAD
Estimated pI:	9.27Accession #: P02775
NCBI Gene ID:	5473

Product Name	Catalog Number	MW	AA
Recombinant NAP-2 (CXCL7)	300-14	7.6 kDa	70

Nesfatin-1

Synonyms:	None		
Description:	Nesfatin-1 is a metabolic polypeptide encoded in the N-terminal region of the precursor protein, Nucleobindin2 (NUCB2). Originally identified as a hypothalamic neuropeptide, nesfatin-1 is also expressed in other areas of the brain, in pancreatic islets β-cells, gastric endocrine cells, and adipocytes. Nesfatin-1 suppresses food intake and can regulate energy metabolism in a Leptin independent manner.		
Research Areas:	Diabetes/Weight Regulation, Neurobiology		
AA Sequence:	VPIDIDKTKV QNIHPVESAK IEPDPTGLYY DEYLKQVIDV LETDKHFREK LQKADIEEIK SGRLSKELDL VSHHVR TKLD EL		
Estimated pI:	5.14	Accession #:	P80303
NCBI Gene ID:	4925		

Product Name	Catalog Number	MW	AA
Recombinant Human Nesfatin-1	300-67	9.7 kDa	82

Neuritin

Synonyms:	CPG15, NRN1		
Description:	Neuritin is a neurotrophic factor that is expressed in response to the induction of neuronal activity by NGF, BDNF, NT3, and other neural stimulators. It is expressed primarily in postmitotic-differentiating neurons of the developing nervous system, and in neuronal structures related to synaptic plasticity in the adult nervous system. Neuritin acts as a molecular mediator of neurite outgrowth, neuronal survival, and synaptic maturation.		
Research Areas:	Neurobiology		
AA Sequence (monomer):	AGKCDAVFKG FSDCLLKLGD SMANYPQGLD DKTNIKTVCT YWEDFHSC TV TALTDCQEGA KDMWDKLRKE SKNLNIQGSL FELCGSGN		
Estimated pI:	4.74	Accession #:	Q9NPD7
NCBI Gene ID:	51299		

Product Name	Catalog Number	MW	AA
Recombinant Human/Rat Neuritin	450-36D	19.4 kDa	176

Neuropoietin

Synonyms:

NPO, NP

Description:

Neuropoietin is a newly identified member of the IL-6 cytokine family. Members of this family, including IL-6, IL-11, oncostatin M, leukemia inhibitory factor (LIF), cardiotrophin-1 (CT-1), cardiotrophin-like cytokine, and CNTF, display a four-helix bundle structure, and signal through gp130-containing receptor complexes. Neuropoietin, which is predominantly expressed in neuroepithelia during embryonic life, acts through a receptor complex formed of a CNTF receptor- α component, gp 130, and LIF receptor. Like CNTF, it promotes the survival of embryonic motor neurons, and could increase the proliferation of neural precursor cells in the presence of EGF and FGF-2. Interestingly, the human neuropoietin gene has evolved toward a pseudogene, suggesting that alternative signaling via CNTF is an effective compensatory pathway.

Research Areas:

Immune System, Neurobiology, Stem Cells & Differentiation

AA Sequence:

MAPISPSEPI GQAYSLALYM QKNTSALLQT YLQHQGSPFS DPGFSAPELQ LSTLPSSAAVS FKTWHAMEDA
ERLSRAQGAF LALTQHLQLV GDDQSYLNPG SPILLAQLGA ARLRAQGLLG NMAAIMTALG LPIPPEEDTL
GFVPGASAF ERKCRGYIVT REYGHWTDR VRLDALLKAK YSA

Estimated pI:

6.49

Accession #:

P83714

NCBI Gene ID:

244218

Product Name	Catalog Number	MW	AA
Recombinant Murine Neuropoietin	250-25B	19.8 kDa	183

Neuroserpin

Synonyms:

Description:

Research Areas:

AA Sequence:

Estimated pI:

NCBI Gene ID:

Serpin I1, Protease inhibitor 12

Neuroserpin is an inhibitory serpin that is expressed predominantly in the central nervous system. Although the physiological target of neuroserpin is still unclear, cumulative evidence suggests that it plays an important role in controlling proteolytic degradation of extracellular matrix (ECM) during synaptogenesis, and the subsequent development of neuronal plasticity. In the adult brain, neuroserpin is secreted from the growth cones of neurons in areas where synaptic changes are associated with learning and memory (i.e. cerebral cortex, hippocampus, and amygdala.) The neuroprotective role of neuroserpin has been demonstrated in transgenic mice lacking neuroserpin expression. The deficiency of neuroserpin in these mice was associated with motor neuron disease characterized by axonal degradation. In humans, defects in neuroserpin, caused by point mutations in the neuroserpin gene, underlie a hereditary disorder called the familial encephalopathy with neuroserpin inclusion bodies (FENIB).

Neurobiology

MTGATFP^{EEA} IADLSVNMYN RLRATGEDEN ILFSPLSIAL AMGM^{MELGAQ} GSTQKEIRHS MG^{YDSL}KN^{GE}
EFSFLKEFSN MVTAKESQYV MKIANS^{LFVQ} NGFHVNEEF^L QMMKKYFNAA VNHVDFSQNV AVANYINKWV
ENNTNNLVKD LVSPRDFDAA TYLALINAVY FKG^{NWKSQFR} PENTRTFSFT K^{DDESEVQIP} MMYQQGEFY^Y
GEFSDGSNEA GGIYQVLEIP YEGDEISMML VLSRQEVPLA TLEPLVKAQL VEEWANSVKK QKVEVYLPRF
TVEQEIDLKD VLKALGITEI FIKDANLTGL SDNKEIFLSK AIHKSFLEVN EEGSEAAAVS GMIAISRMAV
LYPQVIVDHP FFFLIRNRRT GTILFMGRVM HPETMNTSGH DFEEL

4.65

Accession #: Q99574

5274

Product Name	Catalog Number	MW	AA
Recombinant Human Neuroserpin	130-14	44.8 kDa	395

Neurturin

Synonyms:	NTN, NRTN	
Description:	Neurturin is a disulfide-linked homodimer neurotrophic factor structurally related to GDNF, artemin, and persephin. These proteins belong to the cysteine-knot family of growth factors that assume stable dimeric structures. Neurturin signals through a multicomponent receptor system, composed of RET and one of four GFRα (α1-α4) receptors. Neurturin promotes the development and survival of sympathetic and sensory neurons by signaling through a receptor system composed of RET and GFRα2.	
Research Areas:	Immune System, Neurobiology, Stem Cells & Differentiation	
AA Sequence (monomer):	ARLGARPCGL RELEVRVSEL GLGYASDETV LFRYCAGACE AAARVYDLGL RRLRQRRRLR RERVRAQPPC RPTAYEDEVS FLDAHSRYHT VHELARECA CV <i>*Cysteine-69 (Pink) is used for an inter-chain disulfide bridging</i>	
Estimated pI:	10.78	Accession #: Q99748
NCBI Gene ID:	4902	

Product Name	Catalog Number	MW	AA
Recombinant Human Neurturin	450-11	23.6 kDa	204

β-NGF

Synonyms:	beta-Nerve Growth Factor, NGF-β		
Description:	β-NGF is a neurotrophic factor structurally related to BDNF, NT-3 and NT-4. These proteins belong to the cysteine-knot family of growth factors that assume stable dimeric structures. β-NGF is a potent neurotrophic factor that signals through its receptor β-NGFR, and plays a crucial role in the development and preservation of the sensory and sympathetic nervous systems. β-NGF also acts as a growth and differentiation factor for B lymphocytes, and enhances B-cell survival.		
Research Areas:	Angiogenesis/Cardiovascular, Chemotaxis, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Wound Healing		
AA Sequence (monomer):			
Human β-NGF:	SSSHPIFHRG EFSVCDSVSV WVGDKTTATD IKGKEVMVLG EVNINNSVFK QYFFETKCRD PNPVDSGCRG IDSKHWNSYC TTTHTFVKAL TMDGKQAAWR FIRIDTACVC VLSRKAVRRA		
Murine β-NGF:	SSTHPVFHMG EFSVCDSVSV WVGDKTTATD IKGKEVTVLA EVNINNSVFR QYFFETKCRA SNPVESGCRG IDSKHWNSYC TTTHTFVKAL TTDEKQAAWR FIRIDTACVC VLSRKATRGG		
Estimated pI:	Human β-NGF: 9.69 Murine β-NGF: 9.59	Accession #:	Human β-NGF: P01138 Murine β-NGF: P01139
NCBI Gene ID:	Human β-NGF: 4803 Murine β-NGF: 18049		

Product Name	Catalog Number	MW	AA
Recombinant Human β-NGF	450-01	27.0 kDa	240
Animal-Free Recombinant Human β-NGF	AF-450-01	27.0 kDa	240
Recombinant Murine β-NGF	450-34	26.8 kDa	240

NNT-1/BCSF-3

Synonyms:	Novel Neurtrophin-1/B-Cell-Stimulating Factor-3, Cardiotrophin-like cytokine, Cardiotrophin-like cytokine factor 1 (CLCF1)		
Description:	NNT-1/BCSF-3 is a neurotrophic factor with B-cell-stimulating capabilities. Expressed in the lymph nodes and spleen, NNT-1/BCSF-3 activates glycoprotein 130 (gp130) and leukemia inhibitory factor receptor member β (LIFR- β) by binding and inducing the tyrosine phosphorylation of these receptors. <i>In vitro</i> , it supports the survival of chick embryo motor and sympathetic neurons. In mice, NNT-1/BCSF-3 induces serum amyloid A, causes body weight loss, and B-cell hyperplasia associated with increases in serum IgG and IgM.		
Research Areas:	Diabetes/Weight Regulation, Immune System, Neurobiology		
AA Sequence:	MLNRTGDPGP GPSIQKTYDL TRYLEHQIRS LAGTYLNYLG PPFNEPDFNP PRLGAETLPR ATVDLEVWRS LNDKLRLTQN YEAYSHLLCY LRGLNRQAAT AELRRSLAHF CTSLQGLLGS IAGVMAALGY PLPQPLPGTE PTWTPGPAHS DFLQKMDDFW LLKELQTWLW RSAKDFNRLK KKMQPAAAV TLHLGAHGF		
Estimated pI:	9.30	Accession #: Q9UBD9	
NCBI Gene ID:	23529		

Product Name	Catalog Number	MW	AA
Recombinant Human NNT-1/BCSF-3	450-18	22.4 kDa	199

Noggin

Synonyms:	None
Description:	Noggin belongs to a group of diffusible proteins that bind to ligands of the TGF-β family, and regulate their activity by inhibiting their access to signaling receptors. The interplay between TGF-β ligands and their natural antagonists has major biological significance during development processes, in which cellular response can vary considerably depending upon the local concentration of the signaling molecule. Noggin was originally identified as a BMP-4 antagonist whose action was critical for proper formation of the head and other dorsal structures. Consequently, noggin has been shown to modulate the activities of other BMPs including BMP-2,-7,-13, and -14. Targeted deletion of Noggin in mice results in prenatal death, and a recessive phenotype displaying a severely malformed skeletal system. Conversely, transgenic mice over-expressing noggin in mature osteoblasts display impaired osteoblastic differentiation, reduced bone formation, and severe osteoporosis.
Research Areas:	Bone/Skeletal/Cartilage, Immune System, Neurobiology, Osteoporosis, Stem Cells & Differentiation
AA Sequence (monomer):	
Human Noggin:	QHYLHIRPAP SDNLPLVDLI EHPDPIFDPK EKDLNETLLR SLLGGHYDPG FMATSPPEDR PGGGGGAAGG AEDLAELDQL LRQRPSGAMP SEIKGLEFSE GLAQGKKQRL SKKLRRKLQM WLWSQTFCPV LYAWNDLGS FWPRYVKVGS CFSKRSCSV EGMVCKPSKS VHLLTVLRWR CRRGGQRCGW IPIQYPIISE CKCSC
Murine Noggin:	MQHYLHIRPA PSDNLPLVDL IEHPDPIFDP KEKDLNETLL RSLGGHYDP GFMATSPPED RPPGGGGPAG GAEDLAELDQ LLRQRPSGAM PSEIKGLEFS EGLAQGKKQR LSKKLRRKLQ MWLWSQTFCP VLYAWNDLGS RFWPRYVKVG SCFSKRSCSV PEGMVCKPSK SVHLLTVLRWR CRRGGQRCG WIPYPIIS ECKCSC
Estimated pI:	Human Noggin: 9.73 Murine Noggin: 9.73
NCBI Gene ID:	Human Noggin: 9241 Murine Noggin: 18121
Accession #:	Human Noggin: Q13253 Murine Noggin: P97466

Product Name	Catalog Number	MW	AA
Recombinant Human Noggin	120-10C	46.0 kDa	410
Recombinant Murine Noggin	250-38	46.4 kDa	412
Animal-Free Recombinant Murine Noggin	AF-250-38	46.4 kDa	412

NOV

Synonyms:

Nephroblastoma Overexpressed gene, CCN3, IGFBP9, NovH

Description:

NOV is a member of the CCN family of secreted, cysteine-rich regulatory proteins. The full length NOV protein contains four structural domains that confer distinct, and sometimes opposing, biological activities. Elevated expression of NOV is associated with certain tumors, including Wilm’s tumor and most nephroblastomas. However, in other tumor types and certain cancer cell lines, increased tumorigenicity and proliferation is correlated with decreased NOV expression. Additionally, NOV induces cell adhesion and cell migration by signaling through specific cell surface integrins, and by binding to heparin sulfate proteoglycans and to fibulin 1C. NOV has also been reported to exert proangiogenic activities.

Research Areas:

Angiogenesis/Cardiovascular, Cancer, Immune System, Stem Cells & Differentiation

AA Sequence:

MQVAATQRCP PQCPCGRCPAT PPTCAPGVRA VLDGCSCCLV CARQRGESCS DLEPCDESSG LYCDRSADPS
NQTGICTAVE GDNCVFDGVI YRSGEKFQPS CKFQCTCRDG QIGCVPRCQL DVLLPEPNCP APRKVEVPGE
CCEKWICGPD EEDSLGGLTL AAYRPEATLG VEVSDSSVNC IEQTTEWTAC SKSCGMGFST RVTNRNRQCE
MLKQTRLCMV RPCEQEPEQP TDKKGKKCLR TKKSLKAIHL QFKNCTSLHT YKPRFCGVCS DGRCCTPHNT
KTIQAEFQCS PGQIVKKPVM VIGTCTCHTN CPKNNEAFLQ ELELKTTRGK M

Estimated pI:

8.99

Accession #: P48745

NCBI Gene ID:

4856

Product Name	Catalog Number	MW	AA
Recombinant Human NOV	120-26	36.2 kDa	331

NP-1

Synonyms:	Neutrophil Peptide-1, Alpha Defensin-1, HNP-1, Cryptdin		
Description:	Defensins (alpha and beta) are cationic peptides with a broad spectrum of antimicrobial activity that comprise an important arm of the innate immune system. The α -defensins, which include NP-1, NP-2 and NP-3, are distinguished from the β -defensins by the pairing of their three disulfide bonds. In addition to antimicrobial activity, NP-1 exhibits chemotactic activity on dendritic cells. NP-1 is expressed as the C-terminal portion of an inactive precursor protein, which also contains a 19 amino acid N-terminal signal sequence and a 45 amino acid polypeptide. NP-1 contains a six-cysteine motif that forms three intra-molecular disulfide bonds.		
Research Areas:	Chemotaxis, Immune System		
AA Sequence (monomer):	ACYCRIPACI AGERRYGYCI YQRLWAFCC		
Estimated pI:	10.38	Accession #:	P59665
NCBI Gene ID:	1667		

Product Name	Catalog Number	MW	AA
Recombinant Human NP-1	300-42	3.4 kDa	30

NT-3

Synonyms:Neurotrophin-3, Neurotrophic factor, Nerve Growth Factor-2 (NGF-2), HGNF

Description:NT-3 is a neurotrophic factor structurally related to β-NGF, BDNF, and NT-4. These proteins belong to the cysteine-knot family of growth factors that assume stable dimeric structures. NT-3 is expressed by neurons of the central nervous systems, and can signal through the trk receptors. NT-3 promotes the growth and survival of nerve and glial cells. The amino acid sequences of human, murine and rat NT-3 are identical.

Research Areas:Neurobiology, Stem Cells & Differentiation

AA Sequence (monomer):MYAEHKSHRG EYSVCDSESL WVTDKSSAID IRGHQVTVLG EIKTGNSPVK QYFYETRCKE ARPVKNGCRG
IDDKHWNSQC KTSQTYVRAL TSENNKLVGW RWIRIDTSCV CALSRKIGRT

Estimated pI:9.78**Accession #:** P20783

NCBI Gene ID:4908

Product Name	Catalog Number	MW	AA
Recombinant Human NT-3	450-03	27.2 kDa	240
Animal-Free Recombinant Human NT-3	AF-450-03	27.2 kDa	240

Oncostatin M

Synonyms:	OSM
Description:	Oncostatin M (OSM) is a growth and differentiation factor that participates in the regulation of neurogenesis, osteogenesis and hematopoiesis. Produced by activated T cells, monocytes and Kaposi’s sarcoma cells, OSM can exert both stimulatory and inhibitory effects on cell proliferation. It stimulates the proliferation of fibroblasts, smooth muscle cells and Kaposi’s sarcoma cells, but inhibits the growth of some normal and tumor cell lines. It also promotes cytokine release (e.g. IL-6, GM-CSF and G-CSF) from endothelial cells, and enhances the expression of low-density lipoprotein receptors in hepatoma cells. OSM shares several structural and functional characteristics with LIF, IL-6, and CNTF. Human OSM is active on murine cells. The human OSM gene encodes for a 252 amino acid polypeptide, containing 25 amino acid signal sequence for secretion and a 227 precursor protein. Proteolytic processing of this precursor removes an 18 amino acid C-terminal peptide, and generates the mature OSM form.
Research Areas:	AIDS/HIV, Angiogenesis/Cardiovascular, Bone/Skeletal/Cartilage, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation
AA Sequence:	
Human Oncostatin M (196 a.a.):	AAIGSCSKEY RVLLGQLQKQ TDLMQDTSRL LDPYIRIQGL DVPKLREHCR ERPGAFFPSEE TLRGLGRRGF LQTLNATLGC VLHRLADLEQ RLPKAQDLER SGLNIEDLEK LQMARPNILG LRNNIYCMAQ LLDNSDTAEP TKAGRGASQP PTPTPASDAF QRKLEGCRFL HGYHREFMHSV GRVFSKWGES PNRSRR
Human Oncostatin M (209 a.a.):	AAIGSCSKEY RVLLGQLQKQ TDLMQDTSRL LDPYIRIQGL DVPKLREHCR ERPGAFFPSEE TLRGLGRRGF LQTLNATLGC VLHRLADLEQ RLPKAQDLER SGLNIEDLEK LQMARPNILG LRNNIYCMAQ LLDNSDTAEP TKAGRGASQP PTPTPASDAF QRKLEGCRFL HGYHREFMHSV GRVFSKWGES PNRSRRHSPH QALRKGVRR
Human Oncostatin M (227 a.a.):	AAIGSCSKEY RVLLGQLQKQ TDLMQDTSRL LDPYIRIQGL DVPKLREHCR ERPGAFFPSEE TLRGLGRRGF LQTLNATLGC VLHRLADLEQ RLPKAQDLER SGLNIEDLEK LQMARPNILG LRNNIYCMAQ LLDNSDTAEP TKAGRGASQP PTPTPASDAF QRKLEGCRFL HGYHREFMHSV GRVFSKWGES PNRSRRHSPH QALRKGVVRT RPSRKGKRLM TRGQLPR
Rat Oncostatin M:	MKRGCS SSP KLLSQLKSQA NITGNTASLL EPYILHQNLN TLTLRAACTE HPVAFPSDEM LRQLSKPDFL STVHATLGRV WHQLGAFRQQ FPKIQDFPEL ERARQNIQGI RNNVYCMARL LHPPLEIPEP TQADSGTSRP TTTAPGIFQI KIDSCRFLWG YHRFMGSVGR VFEWGDGSR RSRRHSPLWA WLKGDHRIRP SRSSQSAMLR SLVPR
Estimated pI:	Human Oncostatin M (196 a.a.): 9.77 Human Oncostatin M (209 a.a.): 10.57 Human Oncostatin M (227 a.a.): 11.57 Rat Oncostatin M: 11.53
	Accession #: Human Oncostatin M (196 a.a.): P13725 Human Oncostatin M (209 a.a.): P13725 Human Oncostatin M (227 a.a.): P13725 Rat Oncostatin M: Q65Z15
NCBI Gene ID:	Human Oncostatin M (196 a.a.): 5008 Human Oncostatin M (209 a.a.): 5008 Human Oncostatin M (227 a.a.): 5008 Rat Oncostatin M: 289747

Product Name	Catalog Number	MW	AA
Recombinant Human Oncostatin M (196 a.a.)	300-10H	22.2 kDa	196
Recombinant Human Oncostatin M (209 a.a.)	300-10T	23.6 kDa	209
Animal-Free Recombinant Human Oncostatin M (209 a.a.)	AF-300-10T	23.6 kDa	209
Recombinant Human Oncostatin M (227 a.a.)	300-10	25.7 kDa	227
Recombinant Rat Oncostatin M	400-36	24.4 kDa	215

OPG

Synonyms:	Osteoprotegerin, TNFRSF11B, OCIF (Osteoclastogenesis Inhibitory Factor), TR1		
Description:	Osteoprotegerin (OPG) is a member of the TNFR superfamily that can act as a decoy receptor for RANKL. Binding of soluble OPG to sRANKL inhibits osteoclastogenesis by interrupting the signaling between stromal cells and osteoclastic progenitor cells, thereby leading to excess accumulation of bone and cartilage. OPG is expressed in a wide variety of tissues, including the adult heart, lung, kidney, liver, spleen, prostate, lymph node, and bone marrow. OPG is secreted both as a monomeric and a dimeric protein. Its primary structure consists of seven distinct domains, four of which correspond to the extracellular cysteine-rich domains of TNFR proteins and constitute the soluble OPG.		
Research Areas:	Apoptosis, Bone/Skeletal/Cartilage, Cancer, Immune System		
AA Sequence:	METFPPKYLH YDEETSHQLL CDKCPPGTYL KQHCTAKWKT VCAPCPDHYY TDSWHTSDEC LYCSPVCKEL QYVKQECNRT HNRVCECKEG RYLEIEFCLK HRSCPPGFGV VQAGTPERNT VCKRCPDGFF SNETSSKAPC RKHTNCSVFG LLLTQKGNAT HDNICS GNSE STQK		
Estimated pI:	8.20	Accession #:	O00300
NCBI Gene ID:	4982		

Product Name	Catalog Number	MW	AA
Recombinant Human OPG	450-14	20.0 kDa	174

Osteopontin

Synonyms:	Bone sialoprotein 1, Secreted phosphoprotein 1, SPP-1, Nephropontin, Uropontin		
Description:	Osteopontin is a secreted glycoprotein that functions as a ligand to alphavbeta3 integrin and possibly other receptors. It binds tightly to hydroxyapatite, and can act as a structural component of the extracellular mineralized matrix. Osteopontin is initially secreted as a 298 amino acid protein, which is subject to multiple post-translational modifications, including glycosylation, phosphorylation, and specific proteolytic cleavages into various smaller molecular weight fragments. Osteopontin is expressed in a wide range of cells and tissues, including osteoblasts, various tumor cell lines, extraosseous cells in the inner ear, brain, kidney, deciduum, placenta and odontoblasts. In addition to its involvement in mineralized matrix formation, osteopontin can also function as a cytokine that stimulates the release of IFN γ and IL-12, while inhibiting the production of IL-10.		
Research Areas:	Bone/Skeletal/Cartilage, Cancer		
AA Sequence:	IPVKQADSGS SEEKQLYNKY PDAVATWLNP DPSQKQNLLA PQNAVSSEET NDFKQETLPS KSNEASHDHMD DMDEDDDDH VDSQDSIDSN DSDDVDDTDD SHQSDESHHS DESDELVTDF PTDLPATEVF TPVVPTVDTY DGRGDSVYVG LRSKSKKFRR PDIQYPDATD EDITSHMESE ELNGAYKAIP VAQDLNAPSD WDSRGKDSYE TSQLDDQSAE THSHKQSRLY KRKANDESNE HSDVIDSQEL SKVSREFHSH EFHSHEDMLV VDPKSKEEDK HLKFRISHEL DSASSEVN		
Estimated pI:	4.15	Accession #:	P10451
NCBI Gene ID:	6696		

Product Name	Catalog Number	MW	AA
Recombinant Human Osteopontin	120-35	33.7 kDa	298

OTOR

Synonyms:

Otoraplin, MIAL (Melanoma Inhibitory Activity-like Protein)

Description:

OTOR, also called Otoraplin and MIAL, is a secreted cytokine of the MIA/OTOR family. Members of this family, which include MIA, MIA2, and TANGO, share a Src homology-3 (SH3)-like domain. OTOR is predominantly expressed in the cochlea of the inner ear, and, to a lesser extent, in fetal brain tissue and some cartilage tissues. OTOR appears to be involved in early chondrogenesis of the otic capsule, which is required for normal inner ear development and auditory function.

Research Areas:

Angiogenesis/Cardiovascular, Cancer

AA Sequence:

MVHGIFMDRL ASKKLCADDE CVYTISLASA QEDYNAPDCR FINVKKGQOI YVYSKLVKEN GAGEFWAGSV YGDGQDEMGV VGYFPRNLVK EQRVYQEATK EVPTTDIDFF CE

Estimated pI:

4.49

Accession #:

Q9NRC9

NCBI Gene ID:

56914

Product Name	Catalog Number	MW	AA
Recombinant Human OTOR	130-03	12.7 kDa	112

sOX40 Ligand

Synonyms:	TNFSF4, OX40L, Glycoprotein Gp34, CD252, TXGP1
Description:	OX40L, a member of the TNF superfamily of structurally related proteins, exists primarily as a type II membrane-bound, non-covalently linked, homotrimeric protein. It is expressed on antigen-presenting cells (APCs), such as dendritic cells and activated B-cells, as well as on various other cells such as vascular endothelial cells, mast cells, and natural killer cells. OX40L signals specifically through the OX40 receptor, which is expressed predominantly on CD4+ T cells, but also on certain activated CD8+ T cells. OX40/OX40L functions as a costimulatory signal, which is required for a productive interaction between antigen-presenting cells and their target T-cells. It enhances cell proliferation and survival, and increases expression of RANTES, IL-2, IL-3, and IFN γ . OX40/OX40L signaling plays an important role in immuno-regulatory communication, enabling the immune system to distinguish between “friend vs. foe” during activation; a mechanism typically termed immuno-tolerance.
Research Areas:	Cancer, Immune System, Inflammation, Transplantation
AA Sequence:	QVSHRYPRIQ SIKVQFTEYK KEKGFILTSQ KEDEIMKVQN NSVIINCDGF YLISLKGYS QEVNISLHYQ KDEEPLFQLK KVRSVNSLMV ASLTYKDKVY LNVTTDNTSL DDFHVNGGEL ILIHQNPGEF CVL
Estimated pI:	6.49 Accession #: P23510
NCBI Gene ID:	7292

Product Name	Catalog Number	MW	AA
Recombinant Human sOX40 Ligand	310-28	15.4 kDa	133

p16-INK4a

Synonyms:

Cyclin-Dependent Kinase Inhibitor 2A, Cyclin-Dependent Kinase 4 Inhibitor A, CDK4I, p16INK4A, p16-INK4, Multiple Tumor Suppressor 1, MTS-1

Description:

p16-INK4a is a nuclear protein that regulates the cell cycle by inhibiting cyclin-dependent kinase-4 (CDK4) and CDK6. p16-INK4a inhibits CDK activity by binding to the CDK molecules in a manner that interferes with their ability to interact with cyclin D. This activity has the effect of suppressing tumor formation and growth, and of inducing replicative senescence in various normal cells, including stem cells. The expression of p16-INK4a steadily increases with age, and tends to accumulate in stem cell compartments. The deletion, rearrangement, or mutation of the p16-INK4a gene is frequently found in melanomas, as well as in certain other types of cancer.

Research Areas:

Cancer, Stem Cells & Differentiation

AA Sequence:

Human p16-INK4a:

MEPAAGSSME PSADWLATAA ARGRVEEVRA LLEAGALPNA PNSYGRRPIQ VMMMG SARVA ELLLLHGAEP
NCADPATLTR PVHDAAREGF LDTLVVLHRA GARLDVRDAW GRLPVDLAEEL LGHRDVARYL RAAAGGTRGS
NHRIDAAEG PSDIPD

Human p16-INK4a-TAT:

EPAAGSSMEP SADWLATAAA RGRVEEVRA LLEAGALPNAP NSYGRRPIQVMMMG SARVAE LLLLHGAEPN
CADPATLTRP VHDAAREGFL DTLVVLHRAG ARLDVRDAWG RLPVDLAEEL GHRDVARYLR AAAGGTRGSN
HARIDAAEGP SDIPDGYGRK KRRQRRR

Estimated pI:

Human p16-INK4a: 5.41
Human p16-INK4a-TAT: 9.79

Accession #:

Human p16-INK4a: P42771
Human p16-INK4a-TAT: P42771

NCBI Gene ID:

Human p16-INK4a: 1029
Human p16-INK4a-TAT: 1029

Product Name	Catalog Number	MW	AA
Recombinant Human p16-INK4a	110-02	16.5 kDa	156
Recombinant Human p16-INK4a-TAT	110-02T	18.0 kDa	167

PAF-AH

Synonyms:

PAF acetylhydrolase, PAF 2-acylhydrolase, LDL-associated phospholipase A2, LDL-PLA(2), 2-acetyl-1-alkylglycerophosphocholine esterase, 1-alkyl-2-acetyl-glycerophosphocholine

Description:

Platelet Activating Factor (PAF) is a biologically active phospholipid, which exerts primarily proinflammatory activities by specifically signaling through G-protein-coupled receptors on platelets, neutrophils, and monocytes. Platelet Activating Factor Acetylhydrolase (PAF-AH) is a secreted protein that mediates PAF activity by specifically catalyzing hydrolysis of the “sn2” ester bond, resulting in the conversion of PAF to the biologically inactive lyso-PAF. PAF-AH can also interact with LDL particles to induce the hydrolysis of LDL-associated, oxidized phospholipids, generating lysophosphatidylcholine (lyso-PC) and other lysophospholipids.

Research Areas:

Immune System, Inflammation, Lipid Metabolism

AA Sequence:

FDWQYINPVA HMKSSAWVNK IQVLMAAASF GQTKIPRGNG PYSVGCTDLM FDHTNKGTF L RLYYPSQDND
RLDTLWIPNK EYFWGLSKFL GTHWLMGNIL RLLFGSM TTP ANWNSPLRPG EKYPLVVFSH GLGAFRTLYS
AIGIDLASHG FIVA AVEHRD RSASATYYFK DQSAAEIGDK SWLYLRTLKQ EEETHIRNEQ VRQRAKECSQ
ALSLILDIDH GKPVKNALDL KFDMEQLKDS IDREKIAVIG HSF GGATVIQ T LSEDQRFC GIALDAWMFP
LGDEVYSRIP QPLFFINSEY FQYPANI I KM KKCYS PDKER KMITIRGSVH QNFADFTFAT GKIIGHMLKL
KGDIDS NVAI DLSNKASLAF LQKHLGLHKD FDQWDCLIEG DDENLIPGTN INTTNQHIML QNSSGIEKYN

Estimated pI:

7.06

Accession #:

Q13093

NCBI Gene ID:

7941

Product Name	Catalog Number	MW	AA
Recombinant Human PAF-AH	140-10	47.8 kDa	420

PAI-1

Synonyms:	Plasminogen Activator Inhibitor-1, Serpin E1		
Description:	Plasminogen Activator Inhibitor-1 (PAI-1, Serpin E1) is a member of the serpin family of serine protease inhibitors, and is the primary inhibitor of urokinase and tissue plasminogen activator (tPA). PAI-1 is expressed predominantly in adipose, liver and vascular tissues, but is also produced by certain tumor cells. Elevated levels of PAI-1 are associated with obesity, diabetes and cardiovascular disease, and increased production of PAI-1 is induced by various obesity-related factors, such as TNF α , glucose, insulin, and very-low-density lipoprotein. The obesity-related elevation of PAI-1 levels, along with the consequential deficiency in plasminogen activators, can lead directly to increased risk of thrombosis and other coronary diseases. Accordingly, PAI-1 has been implicated as an important molecular link between obesity and coronary disease. PAI-1 can also specifically bind vitronectin (VTN) to form a stable active complex with an increased circulatory half-life relative to free PAI-1.		
Research Areas:	Angiogenesis/Cardiovascular, Cancer, Diabetes/Weight Regulation, Neurobiology		
AA Sequence:	VHHPPSYVAH LASDFGVRVF QQVAQASKDR NVVFSPYGVA SVLAMLQLTT GGETQQQIQQA AMGFKIDDKG MAPALRHLYK ELMGPWNKDE ISTTDAIFVQ RDLKLVQGFM PHFFRLFRST VKQVDFSEVE RARFIINDWV KTHTKGMISN LLGKGAVDQL TRLVLVNALY FNGQWKTPFP DSSTHRRLFH KSDGSTVSVPMMAQTNKFNY TEFTTPDGHY YDILELPYHG DTLSMFIAAP YEKEVPLSAL TNILSAQLIS HWKGNMTRLP RLLVLPKFSL ETEVDLRKPL ENLGMTDMFR QFQADFTSLS DQEPLHVAQA LQKVKIEVNE SGTVASSSTA VIVSARMAPE EIIIMDRPFLF VVRHNPTGTV LFMGQVMEP		
Estimated pI:	7.04	Accession #:	P05121
NCBI Gene ID:	5054		

Product Name	Catalog Number	MW	AA
Recombinant Human PAI-1	140-04	42.7 kDa	379

PAI-2

Synonyms:

Plasminogen Activator Inhibitor-2, Monocyte Arg-serpin, Serpin B2, Urokinase Inhibitor

Description:

PAI-2 is an inhibitory serpin expressed mainly in keratinocytes, activated monocytes, and placental trophoblasts. It exists predominantly as a 47 kDa, nonglycosylated, intracellular protein, which can be induced to be secreted as 60 kDa glycoprotein. The glycosylated and unglycosylated forms of PAI-2 are equally effective as inhibitors of urokinase-type plasminogen activator (uPA), the only established physiological target of this serpin. PAI-2 has a unique ability to form dormant polymers spontaneously and reversibly under physiological conditions. The physiological relevance of this property, which is neither a consequence of any mutation in the PAI-2 gene nor associated with any known disorder, is still unclear. However, it appears that the formation of intracellular, dormant polymers may be important for the controlled release of the inhibitor from PAI-2 producing cells. Plasma levels of PAI-2 are usually low or undetectable, except during pregnancy and in some forms of monocytic leukemia. Secretion of PAI-2 from the placenta normally occurs during the third trimester of pregnancy, and accounts for the dramatic increase in PAI-2 levels (up to 250 ng/ml), which are maintained at these levels until postpartum, and then rapidly decline. In addition to its vital role in protecting the placenta from degradation by uPA and/or uPA-activated proteases, PAI-2 has been shown to be essential for the prevention of metastatic spread of neck, lung and breast cancers. The beneficial effect of PAI-2 seen in these studies is presumed to stem from its ability to inhibit uPA-dependent cell dissemination. PAI-2 has also been reported to inhibit keratinocyte proliferation, and to participate in the innate immune response during viral infection.

Research Areas:

Cancer, Diabetes/Weight Regulation

AA Sequence:

MEDLCVANTL FALNLFKHLA KASPTQNLFL SPWSISSTMA MVYMGSRGST EDQMAKVLQF NEVGANAVTP
MTPENFTSCG FMQIQKGSY PDAILQAQAA DKIHSSFRSL SSAINASTGN YLLESVNKLF GEKSASFREE
YIRLCQKYYS SEPQAVDFLE CAEEARKKIN SWVKTQTKGK IPNLLPEGSV DGDTRMVLVN AVYFKGKWKT
PFEKKLNGLY PFRVNSAQRT PVQMMYLREK LNIGYIEDLK AQILELPYAG DVSFLLLPD EIADVSTGLE
LLESEITYDK LNKWTSKDKM AEDEVYIP QFKLEEYEL RSILRSMGME DAFNKGRANF SGMSEKNDLF
LSEVFHQAMV DVNEEGTEAA AGTGGVMTGR TGHGGPQFVA DHPFLFLIMH KITNCILFFG RFSSP

Estimated pI:

5.32

Accession #:

P05120

NCBI Gene ID:

5055

Product Name	Catalog Number	MW	AA
Recombinant Human PAI-2	140-06	46.5 kDa	415

PD-1

Synonyms:

Description:

Research Areas:

AA Sequence (monomer):

Estimated pI:

NCBI Gene ID:

Programmed cell death protein 1 (PDCD1), CD279, SLEB2, hSLE1

Programmed cell death protein 1 (PD-1), or CD279, is a type I inhibitory transmembrane receptor of the CD28 receptor family that, along with its B7 family ligands, programmed death ligand 1 (PD-L1) and programmed death ligand 2 (PD-L2), belongs to the immunoglobulin superfamily. While other CD28 family members are expressed predominantly in T cells, PD-1 is widely expressed and found in multiple lymphocytes including T cells, B cells, myeloid, and NKT cells upon activation. PD-1 is a negative regulator of immune response, and is referred to as an inhibitory immune checkpoint molecule. Ligation with PD-L1 or PD-L2 results in inhibited activation, proliferation, and cytokine secretion (e.g. IFN-gamma, IL-10) in T cells, ultimately dampening immune response. Despite the strong homology between PD-L1 and PD-L2, each ligand appears to display distinct lymphokine expression patterns and potency. Blockage of PD-1 ligation by monoclonal antibodies has been proven to be an effective anti-tumor treatment by allowing the immune response to remain active and attack the tumorigenic cells that otherwise would have escaped detection. PD-1 and its ligands have been implicated in numerous autoimmune diseases, inflammatory liver disease and cancers. The naturally occurring human PD-1 monomer consists of a 150 amino acid extracellular domain, a 21 amino acid transmembrane domain, and a 97 amino acid cytoplasmic domain.

Allergy, Cancer, Immune System, Inflammation, Proliferation

PGWFLDSPDR PWNPTTFSPA LLVVTEGDNA TFTCSFSNTS ESFVLNWYRM SPSNQTDKLA AFPEDRSQPG
QDCRFRVTQL PNGRDFHMSV VRARRNDSGT YLCGAISLAP KAQIKESLRA ELRVTERRAE VPTAHPSPSP
RPAGQFQTLV VGVVGGLLGS LVLLVWVLAV ICSRAARGTI GARRTGQPLK EDPSAVPVFS VDYGELDFQW
REKTPEPPVP CVPEQTEYAT IVFPSGMGTS SPARRGSADG PRSAQPLRPE DGHCSWPLGG PKSCDKTHTC
PPCPAPELLG GPSVFLFPPK PKDTLMISRT PEVTCVVVDV SHEDPEVKFN WYVDGVEVHN AKTKPREEQY
NSTYRVVSVL TVLHQDWLNG KEYKCKVSNK ALPAPIEKTI SKAKGQPREP QVYTLPPSRD ELTKNQVSLT
CLVKGFYPSD IAVEWESNGQ PENNYKTPP VLDSDGSFFL YSKLTVDKSR WQQGNVFSCS VMHEALHNHY
TQKSLSLSPG K

8.34

Accession #: Q15116

5133

Product Name	Catalog Number	MW	AA
Recombinant Human PD-1 Fc	310-40	55.3 kDa	501

PDGF (AA, AB, BB)

Synonyms:	Platelet-Derived Growth Factor-AA, Platelet-Derived Growth Factor-AB, Platelet-Derived Growth Factor-BB, Glioma-Derived Growth Factor (GDGF), Osteosarcoma-Derived Growth Factor (ODGF), PCGF		
Description:	PDGFs are disulfide-linked dimers consisting of two 12.0-13.5 kDa polypeptide chains, designated PDGF-A and PDGF-B chains. The three naturally occurring PDGFs, PDGF-AA, PDGF-BB and PDGF-AB, are potent mitogens for a variety of cell types, including smooth muscle cells, connective tissue cells, bone and cartilage cells, and some blood cells. The PDGFs are stored in platelet α -granules, and are released upon platelet activation. The PDGFs are involved in a number of biological processes, including hyperplasia, chemotaxis, embryonic neuron development, and respiratory tubule epithelial cell development. Two distinct signaling receptors used by PDGFs have been identified and named PDGFR- α and PDGFR- β . PDGFR- α is high-affinity receptor for each of the three PDGF forms. On the other hand, PDGFR- β interacts with only PDGF-BB and PDGF-AB.		
Research Areas:	Angiogenesis/Cardiovascular, Bone/Skeletal/Cartilage, Cancer, Immune System, Neurobiology, Stem Cells & Differentiation, Wound Healing		
AA Sequence (monomer):			
Human PDGF-AA:	SIEEAVPAVC KTRTVIYEIP RSQVDPTSAN FLIWPPCVEV KRCTGCCNTS SVKCQPSRVH HRSVKVAKVE YVRKKPKLKE VQVRLEEHL E CACATTS LNP DYREEDTGRP RESGKKRKRK RLKPT		
Murine PDGF-AA:	SIEEAVPAVC KTRTVIYEIP RSQVDPTSAN FLIWPPCVEV KRCTGCCNTS SVKCQPSRVH HRSVKVAKVE YVRKKPKLKE VQVRLEEHL E CACATSNLNP DHREEETGRR RESGKNRKRK RLKPT		
Human PDGF-AB:			
Alpha Chain:	SIEEAVPAVC KTRTVIYEIP RSQVDPTSAN FLIWPPCVEV KRCTGCCNTS SVKCQPSRVH HRSVKVAKVE YVRKKPKLKE VQVRLEEHL E CACATTS LNP DYREEDTGRP RESGKKRKRK RLKPT		
Beta Chain:	SLGSLTIAEP AMIAECKTRT EVFEISRRLI DRTNANFLVW PPCVEVQRCS GCCNNRNVQC RPTQVQLRPV QVRKIGIVRK KPIFKKATVT LGDHLACKCE TVAAARPVT		
Human PDGF-BB:	SLGSLTIAEP AMIAECKTRT EVFEISRRLI DRTNANFLVW PPCVEVQRCS GCCNNRNVQC RPTQVQLRPV QVRKIEIVRK KPIFKKATVT LEDHLACKCE TVAAARPVT		
Murine PDGF-BB:	SLGSLAAAEP AVIAECKTRT EVFQISRRLI DRTNANFLVW PPCVEVQRCS GCCNNRNVQC RASQVQMRPV QVRKIEIVRK KPIFKKATVT LEDHLACKCE TIVTRPVRT		
Estimated pI:	Human PDGF-AA: 10.17 Murine PDGF-AA: 10.35 Human PDGF-AB: 10.64 Human PDGF-BB: 11.32 Murine PDGF-BB: 11.35	Accession #:	Human PDGF-AA: P04085 Murine PDGF-AA: P20033 Human PDGF-AB: P04085/P01127 Human PDGF-BB: P01127 Murine PDGF-BB: P31240
NCBI Gene ID:	Human PDGF-AA: 5154 Murine PDGF-AA: 18590 Human PDGF-AB: 5154/5155 Human PDGF-BB: 5155 Murine PDGF-BB: 18591		

Product Name	Catalog Number	MW	AA
Recombinant Human PDGF-AA	100-13A	28.5 kDa	250
Animal-Free Recombinant Human PDGF-AA	AF-100-13A	28.5 kDa	250
PeproGMP® Recombinant Human PDGF-AA	GMP100-13A	28.5 kDa	250
Recombinant Murine PDGF-AA	315-17	28.7 kDa	250
Recombinant Human PDGF-AB	100-00AB	26.4 kDa	234
Recombinant Human PDGF-BB	100-14B	24.3 kDa	218
Animal-Free Recombinant Human PDGF-BB	AF-100-14B	24.3 kDa	218
Recombinant Murine PDGF-BB	315-18	24.4 kDa	218

PDGF-CC

Synonyms:	Platelet-Derived Growth Factor-CC, Fallotein, Spinal Cord-Derived Growth Factor (SCDGF)		
Description:	The platelet-derived growth factor (PDGF) family of heparin-binding growth factors consists of five known members, denoted PDGF-AA, PDGF-BB, PDGF-AB, PDGF-CC and PDGF-DD. The mature and active form of these proteins, an anti-parallel, disulfide-linked dimer of two 12-14 kDa, polypeptide chains, is obtained through proteolytic processing of biologically inactive precursor proteins, which contain an N-terminal CUB domain and a PDGF/VEGF homologous domain. The PDGFs interact with two related protein tyrosine kinase receptors, PDGFR- α and PDGFR- β , and are potent mitogens for a variety of cell types, including smooth muscle cells, connective tissue cells, bone and cartilage cells, and certain tumor cells. They play an important role in a number of biological processes, including hyperplasia, chemotaxis, embryonic neuron development, and respiratory tubules' epithelial cell development. Mature PDGFs are stored in platelet α -granules, and are released upon platelet activation. PDGF-AA, -AB, -BB and -CC signal primarily through the PDGF-R α receptor, whereas PDGF-DD interacts almost exclusively with the PDGF-R β receptor.		
Research Areas:	Angiogenesis/Cardiovascular, Bone/Skeletal/Cartilage, Cancer, Immune System, Neurobiology, Stem Cells & Differentiation, Wound Healing		
AA Sequence (monomer):	MVVDLNLLTE EVRLYSCTPR NFSVSIREEL KRTDTIFWPG CLLVKRCGN CACCLHNCNE CQCVPSKVTK KYHEVLQLRP KTGVRGLHKS LTDVALEHHE ECDCVCRGST GG		
Estimated pI:	9.17	Accession #:	Q9NRA1
NCBI Gene ID:	56034		

Product Name	Catalog Number	MW	AA
Recombinant Human PDGF-CC	100-00CC	25.0 kDa	224

PD-L1

Synonyms:

Programmed Death Ligand 1, Programmed cell death 1 Ligand 1 (PDCD1L1), PD-1, B7-H1 (B7 homolog 1), CD274, SLEB2, SLE1

Description:

Programmed death-ligand 1 (PD-L1), or B7-H1, is a transmembrane, co-stimulatory ligand of programmed cell death protein 1 (PD-1) that, along with B7-1 and B7-2, belongs to the B7 family and immunoglobulin superfamily. Though more notably expressed on activated T-cells, B-cells, myeloid cells, and a subset of thymocytes, PD-L1 is also expressed constitutively by nonlymphoid, parenchymal organs, including the heart, placenta, skeletal muscle, and lung; with the marked exception of the small intestine. As a member of the B7 family, PD-L1 plays a principal role in immunity: suppressing immune response against autoantigens and tumors, maintaining T-cell homeostasis, maintaining peripheral immune tolerance, and regulating T-cell-mediated cytokine secretion. Unlike B7-1 and B7-2, PD-L1 has not been shown to influence immunity through interaction with CD28, CTLA4 or ICOS, but rather through interaction with PD-1, a weak structural homolog of CTLA4 that belongs to the same superfamily. Involvement of PD-1 suggests an inhibitory function during T-cell activation; however, evidence has demonstrated PD-L1's conflicting responsibility for both the stimulation and inhibition of T-cell-mediated cytokine synthesis. While T-cell co-stimulation with PD-L1 induces proliferation and the secretion of IL-10 and IFN- γ , muscle cell expression of PD-L1 has been shown to inhibit function of CD4 and CD8 T-cells by down-regulating cytokine secretion and the expression of T-cell activation markers. Augmented expression of PD-L1 has been linked to the inhibition of antitumor immune response in cancer, and the up-regulation of IL-10 production in HIV-infection, resulting in increased susceptibility of antigen-specific T-cells to apoptosis.

Research Areas:

AIDS/HIV, Allergy, Cancer, Immune System, Inflammation, Proliferation

AA Sequence (monomer):

FTVTVPKDLY VVEYGSNMTI ECKFPVEKQL DLAALIVYWE MEDKNIIQFV HGEEDLKVQH SSYRQRARLL
KDQLSLGNAA LQITDVKLQD AGVYRCMISY GGADYKRITV KVNAPYNKIN QRILVVDPVT SEHELTCQAE
GYPKAEVIWT SSDHQVLSGK TTTTNSKREE KLFNVTSTLR INTTTNEIFY CTFRRLDPEE NHTAELVIPE
LPLAHPPNER GGPKSCDKTH TCPPCPAPEL LGGPSVFLFP PKPKDTLMIS RTPEVTCVVV DVSHEDPEVK
FNWYVDGVEV HNAKTKPREE QYNSTYRVVS VLTVLHQDWL NGKEYKCKVS NKALPAPIEK TISKAKGQPR
EPQVYTLPPS RDELTKNQVS LTCLVKGFYP SDIAVEWESN GQPENNYKTT PPVLDSGGSF FLYSKLTVDK
SRWQQGNVFS CSVMHEALHN HYTQKSLSLS PGK

Estimated pI:

6.62

Accession #:

Q9NZQ7

NCBI Gene ID:

29126

Product Name	Catalog Number	MW	AA
Recombinant Human PD-L1 Fc	310-35	51.3 kDa	453

PD-L2

Synonyms: Programmed cell death 1 ligand 2 (PDCD1 ligand 2), PD-1 ligand 2, Programmed death ligand 2, Butyrophilin B7-DC, CD273, PDCD1LG2, PDCD1L2, PDLB7DC

Description: Programmed death-ligand 2 (PD-L2), or B7-DC, is a member of the B7 ligand family within the immunoglobulin superfamily that, along with programmed death-ligand 1 (PD-L1), acts as a ligand for programmed cell death protein 1 (PD-1). Though expressed primarily in dendritic cells, PD-L2 expression can be induced on a wide variety of immune and non-immune cells depending on the microenvironment. PD-L2 expression is particularly upregulated in the presence of Th2 cytokine, IL-4, as well as Th1 cytokines, TNF- α and IFN- γ to a lesser degree. While generally expressed at lower levels compared to PD-L1, PD-L2 demonstrates a 2 to 6 times higher relative affinity to PD-1 than PD-L1. PD-1 and its ligands are referred to as inhibitory immune checkpoint molecules in that they provide useful negative feedback during physiological homeostasis. Ligation of PD-L2 or PD-L1 inhibits activation, proliferation, and cytokine secretion (e.g. IFN-gamma, IL-10) in T cells, ultimately dampening immune response. Conversely, studies have shown that PD-L2 can also stimulate T-cell proliferation and cytokine production, even in PD-1-deficient T cells, suggesting additional receptors. Recent studies have concluded that PD-L2 also binds to a second receptor, repulsive guidance molecule b (RGMb), which was originally identified as a receptor for bone morphogenetic proteins (BMPs). RGMb is expressed in the central nervous system, as well as in macrophages, however, its role in immunity is only beginning to emerge. Interaction between PD-L2 and RGMb regulates the development of respiratory tolerance in the lung through BMP and/or neogenin signaling pathways. The naturally occurring human PD-L2 monomer consists of a 201-amino-acid extracellular domain, a 21-amino-acid transmembrane domain, and a 32-amino-acid cytoplasmic domain.

Research Areas: Allergy, Cancer, Immune System, Inflammation, Proliferation

AA Sequence (monomer): LFTVTVPKEL YIIIEHGSNVT LECNFDTGSH VNLGAITASL QKVENDTSPH RERATLLEEQ LPLGKASFHI
PQVQVRDEGQ YQCIIYGV A WDYKYLT LKV KASYRKINT H ILKVPETDEV ELTCQATGYP LAEVS WPNV S
VPANTSHSRT PEGLYQVTSV LRLKPPPGRN FSCVFWNTHV RELTLASIDL QSQMEPRTHP GGP KSCDKTH
TCPPCPAPEL LGGPSVFLFP PKPKDTLMIS RTPEVTCVVV DVSHEDPEVK FNWYVDGVEV HNAKTKPRE E
QYNSTYRVVS VLTVLHQDWL NGKEYKCKVS NKALPAPIEK TISKAKGQPR EPQVYTLPPS RDELTKNQVS
LTCLVKGFYP SDIAVEWESN GQPENNYKTT PPVLDS DGSF FLYSKLTVDK SRWQQGNVFS CSVMHEALHN
HYTQKSLSLS PGK

Estimated pI: 7.03 **Accession #:** Q9BQ51

NCBI Gene ID: 80380

Product Name	Catalog Number	MW	AA
Recombinant Human PD-L2 Fc	310-38	48.6 kDa	433

PECAM-1

Synonyms:

Platelet Endothelial Cell Adhesion Molecule, CD31 antigen, EndoCAM

Description:

PECAM is transmembrane glycoprotein that belongs to the Ig-related superfamily of adhesion molecules. It is highly expressed at endothelial cell junctions, and is also expressed in platelets and most leukocyte sub-types. The primary function of PECAM-1 is the mediation of leukocyte-endothelial cell adhesion and signal transduction. PECAM-1 has been implicated in the pathogenesis of various inflammation-related disorders, including thrombosis, multiple sclerosis (MS), and rheumatoid arthritis. The human PECAM-1 gene codes for a 738 amino acid transmembrane glycoprotein that contains a 118 amino acid cytoplasmic domain, a 19 amino acid transmembrane domain, and a 574 amino acid extracellular domain.

Research Areas:

Immune System, Inflammation

AA Sequence:

ENSFTINSVD MKSLPDWTVQ NGKNLTQLCF ADVSTTSHVK PQHQMLFYKD DVLFYNISSM KSTESYFIPE
VRIYDSGTYK CTIVIVNNKEK TTAEQQLLVE GVPSPRVTLT KKEAIQGGIV RVNCSVPPEEK APIHFTIEKL
ELNEKMOVKLK REKNSRDQNF VILEFPVEEQ DRVLSFRCQA RIISGIHMQT SESTKSELVT VTESFSTPKF
HISPTGMIME GAQLHIKCTI QVTHLAQEF EIIIQKDKAI VAHNRHGNKA VYSVMAMVEH SGNYTCKVES
SRISKVSSIV VNITELFSKP ELESSFTHLD QGERLNLSCS IPGAPPANFT IQKEDTIVSQ TQDFTKIASK
SDSGTYICTA GIDKVVKKSN TVQIVVCEML SQPRISYDAQ FEVIKGQTIE VRCEsisGTL PISYQLLKTS
KVLNSTKNS NDPAVFKDNP TEDVEYQCVA DNCHSHAKML SEVLRVKVIA PVDEVQISIL SSKVVESGED
IVLQCAVNEG SGPITYKFYR EKEGKPFYQM TSNATQAFWT KQKASKEQEG EYYCTAFNRA NHASSVPRSK
ILTVRVILAP WK

Estimated pI:

6.60

Accession #:

P16284

NCBI Gene ID:

5175

Product Name	Catalog Number	MW	AA
Recombinant Human PECAM-1	150-06	64.3 kDa	572

PEDF

Synonyms:

Pigment Epithelium-Derived Factor, SerpinF1, EPC-1

Description:

PEDF is a noninhibitory serpin with neurotrophic, anti-angiogenic, and anti-tumorigenic properties. It is a 50 kDa glycoprotein produced and secreted in many tissues throughout the body. A major component of the anti-angiogenic action of PEDF is the induction of apoptosis in proliferating endothelial cells. In addition, PEDF is able to inhibit the activity of angiogenic factors, such as VEGF and FGF-2. The neuroprotective effects of PEDF are achieved through suppression of neuronal apoptosis induced by peroxide, glutamate, or other neurotoxins. The recent identification of a lipase-linked cell membrane receptor for PEDF (PEDF-R) that binds to PEDF with high affinity (*Notari, I. et al. J Biol Chem., Vol. 281, 38022-38037*) should facilitate further elucidation of the underlying mechanisms of this pluripotent serpin. To date, PEDF-R is the only signaling receptor known to be used by a serpin family member. The unique range of PEDF activities implicate it as a potential therapeutic agent for the treatment of vasculature-related neurodegenerative diseases, such as age-related macular degeneration (AMD) and proliferative diabetic retinopathy (PDR). PEDF also has the potential to be useful in the treatment of various angiogenesis-related diseases including a number of cancers.

Research Areas:

Angiogenesis/Cardiovascular, Apoptosis, Cancer, Immune System, Neurobiology

AA Sequence:

MQNPASPPEE GSPDPDSTGA LVEEEDPFFK VPVNKLAAAV SNFGYDLYRV RSSMSPTTNV LLSPLSVATA
LSALSLGAEQ RTESIIHRAL YYDLISSPDI HGTYKELLDV VTAPQKNLKS ASRIVFEKKL RIKSSFVAPL
EKSYGTRPRV LTGNPRLDLQ EINNWWQAQM KGKLARSTKE IPDEISILLI GVAHFQGWV TKFDSRKTSI
EDFYLDEERT VRVPMMSDPK AVLRYGLDSD LSCKIAQLPL TGSMSTIFFL PLKVTQNLTL IEESLTSEFI
HDIDRELKTV QAVLTVPKLK LSYEGEVTKS LQEMKLQSLF DSPDFSKITG KPIKLTQVEH RAGFEWNEDG
AGTTPSPGLQ PAHLTFPLDY HLNQPFIFVL RDTDTGALLF IGKILDPRGP

Estimated pI:

5.84

Accession #:

P36955

NCBI Gene ID:

5176

Product Name	Catalog Number	MW	AA
Recombinant Human PEDF	130-13	44.5 kDa	400

Persephin

Synonyms:	PSP, PSPN
Description:	Persephin is a disulfide-linked, homodimeric, neurotrophic factor structurally related to GDNF, artemin, and neurturin. These proteins belong to the cysteine knot family of growth factors that assume stable dimeric structures. Persephin signals through a multicomponent receptor system, composed of RET and one of four GFR α ($\alpha 1$ - $\alpha 4$) receptors. The GFR $\alpha 4$ was first identified in chicken, and was later shown to be the preferential binding subunit for persephin. Persephin promotes the survival of ventral midbrain dopaminergic neurons and motor neurons after sciatic nerve oxotomy, and, like GDNF, promotes ureteric bud branching. However, in contrast to GDNF and neurturin, persephin does not support the survival of peripheral neurons.
Research Areas:	Immune System, Neurobiology, Stem Cells & Differentiation
AA Sequence (monomer):	
Human Persephin:	RALSGPCQLW SLTLSVAELG LGYASEEKVI FRYCAGSCPR GARTQHGLAL ARLQGQGRAH GGPCCRPTRY TDVAFLDDRH RWQLPQLSA AACGCGG <i>*Cysteine-63 (pink) is used for intra-chain disulfide bridging</i>
Murine Persephin:	ALAGSCRLWS LTLPVaelGL GYaseekVIF RYcagSCPQE ARTQHSLVLA RLRGRGRAHG RPPCCQPTSYA DVTFLDDQHH WQQLPQLSAA ACGCGG <i>*Cysteine-63 (pink) is used for intra-chain disulfide bridging</i>
Estimated pI:	Human Persephin: 11.71 Murine Persephin: 9.80
NCBI Gene ID:	Human Persephin: 5623 Murine Persephin: 19197
Accession #:	Human Persephin: O60542 Murine Persephin: O70300

Product Name	Catalog Number	MW	AA
Recombinant Human Persephin	450-12	20.8 kDa	194
Recombinant Murine Persephin	450-35	20.6 kDa	192

PF-4 (CXCL4)

Synonyms: Platelet Factor-4, Oncostatin A, Ironplact

Description: PF-4 is a CXC chemokine that is expressed in megakaryocytes and stored in the α -granules of platelets. PF-4 is chemotactic towards neutrophils and monocytes, and has been shown to inhibit angiogenesis.

Research Areas: Angiogenesis/Cardiovascular, Chemotaxis, Immune System, Inflammation, Wound Healing

AA Sequence:

Human PF-4 (CXCL4): EAEEDGDLQC LCVKTTSQVR PRHITSLEVI KAGPHCPTAQ LIATLKNGRK ICLDLQAPLY KKIICKLLES

Murine PF-4 (CXCL4): VTSAGPEESD GDLSCVCVKT ISSGIHLKHI TSLEVIKAGR HCAVPQLIAT LKNGRKICLD RQAPLYKKVI
KKILES

Estimated pI:	Human PF-4 (CXCL4): 9.30	Accession #: Human PF-4 (CXCL4): P02776
	Murine PF-4 (CXCL4): 9.65	Murine PF-4 (CXCL4): Q9Z126

NCBI Gene ID: Human PF-4 (CXCL4): 5196
Murine PF-4 (CXCL4): 56744

Product Name	Catalog Number	MW	AA
Recombinant Human PF-4 (CXCL4)	300-16	7.8 kDa	70
Recombinant Murine PF-4 (CXCL4)	250-39	8.2 kDa	76

Pleiotrophin

Synonyms: PTN, Heparin Affin Regulatory Protein (HARP), Heparin-Binding Growth Factor-8 (HBGF-8), Osteoblast-Specific Factor 1 (OSF-1)

Description: Pleiotrophin and Midkine are structurally related heparin-binding neurotrophic factors, whose expression is developmentally regulated. The expression pattern of these neurotrophic factors suggests function in neurogenesis, cell migration, secondary organogenetic induction, and mesoderm epithelial interaction. The expression of PTN increases during the process of brain embryogenesis, and reaches maximum levels at time of birth. The physiological roles of PTN and Midkine are largely unknown, but these neurotrophins have been implicated in the pathogenesis of neuroblastomas.

Research Areas: Neurobiology, Stem Cells & Differentiation

AA Sequence: GKKEKPEKKV KKSDCGEWQW SVCVPTSGDC GLGTREGTRT GAECKQTMKT QRCKIPCNWK KQFGAECKYQ
FOAWGECDLN TALKTRTGSL KRALHNAECO KTVTISKPCG KLTKPKPOAE SKKKKKEGKK OEKMLD

Estimated pI: 9.96 **Accession #:** P21246

NCBI Gene ID: 5764

Product Name	Catalog Number	MW	AA
Recombinant Human Pleiotrophin	450-15	15.4 kDa	136

PIGF-1

Synonyms:	Placenta Growth Factor-1, PIGF, PGF, PGFL		
Description:	PIGF-1 is an angiogenic factor that belongs to the cysteine-knot superfamily of growth factors. PIGF-1 is expressed in placental tissues, the colon, and mammary carcinomas. It signals through the VEGFR-1/FLT1 receptor, and stimulates endothelial cell proliferation and migration.		
Research Areas:	Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation,Neurobiology, Stem Cells & Differentiation		
AA Sequence (monomer):			
Human PIGF-1:	MLPAVPPQQW ALSAGNGSSE VEVVPFQEVW GRSYCRALER LVDVVSEYPS EVEHMFSPSC VSLLRCTGCC GDENLHCVPV ETANVTMQLL KIRSGDRPSY VELTFSQHVR CECRPLREKM KPERCGDAVP RR		
Rat PIGF-1:	ALSAGNNSTE MEVVPFNEVW GRSYCRMEK LVYIADDEHPN EVSHIFSPSC VLLSRCSGCC GDEGLHCVAL KTANITMQIL KIPPNRDPHS YVEMTFSQDV LCECRPILET TKAERRKTKG KRKQSKTPQT EEPHL		
Estimated pI:	Human PIGF-1: 5.90 Rat PIGF-1: 7.48	Accession #:	Human PIGF-1: P49763 Rat PIGF-1: Q63434
NCBI Gene ID:	Human PIGF-1: 5228 Rat PIGF-1: 94203		

Product Name	Catalog Number	MW	AA
Recombinant Human PIGF-1	100-06	29.7 kDa	264
Animal-Free Recombinant Human PIGF-1	AF-100-06	29.7 kDa	264
Recombinant Rat PIGF-1	400-39	30.3 kDa	270

PIGF-2

Synonyms:

Placenta Growth Factor-2, PGFL

Description:

PIGF-2 is an angiogenic factor that belongs to the cysteine-knot superfamily of growth factors. PIGF-2 is expressed in umbilical vein endothelial cells and placenta. It signals through the VEGFR-1/FLT1 receptor, and stimulates endothelial cell proliferation and migration. PIGF-2 also signals through Neuropilin (NP-1), and can bind with high affinity to heparin.

Research Areas:

Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation, Stem Cells & Differentiation

AA Sequence (monomer):

Human PIGF-2:

LPVAVPPQQWA LSAGNGSSEV EVVPFQEVWG RSYCRALERL VDVVSEYPSE VEHMFSPSCV SLLRCTGCCG
DENLHCVPE TANVTMQLLK IRSGDRPSYV ELTFSQHVRC ECRPLREKMK PERRRPKGRG KRRREKQRPT
DCHLCGDAVP RR

Estimated pI:

Human PIGF-2: 9.23

Accession #: P49763

NCBI Gene ID:

Human PIGF-2: 5228

Product Name	Catalog Number	MW	AA
Recombinant Human PIGF-2	100-56A	34.6 kDa	304

PIGF-3

Synonyms: Placenta Growth Factor-3, PGFL

Description: PIGF-3 is an angiogenic factor that belongs to the cysteine-knot superfamily of growth factors. PIGF-3 is expressed exclusively in the placenta. It signals through the VEGFR-1/FLT1 receptor, and stimulates endothelial cell proliferation and migration. PIGF-3 lacks heparin binding affinity.

Research Areas: Angiogenesis/Cardiovascular, Immune System, Inflammation, Stem Cells & Differentiation

AA Sequence (monomer): LPAVPPQQWA LSAGNGSSEV EVVPFQEVWG RSYCRALERL VDVVSEYPSE VEHMFSPSCV SLLRCTGCCG
DENLHCVPE TANVTMQLLK IRSGDRPSYV ELTFSQHVRC ECRHSPGRQS PDMPGDFRAD APSFLPPRRS
LPMLFRMEWG CALTGSQSAV WPSSPVPEEI PRMHPGRNGK KQQRKPLREK MKPERCGDAV PRR

Estimated pI: 9.47 **Accession #:** P49763

NCBI Gene ID: 5228

Product Name	Catalog Number	MW	AA
Recombinant Human PIGF-3	100-57	45.7 kDa	406

Prokineticin-2

Synonyms:	PROK2, PK2, Protein Bv8 homolog		
Description:	Prokineticin-2 (PK2) is a cysteine-rich secreted protein that is expressed in the testis and, in lower levels, in the small intestine. PK2 regulates various biological functions, including gastrointestinal motility, angiogenesis and circadian rhythms. It is closely related to EG-VEGF (Prokineticin-1), and binds to two orphan B-protein-coupled receptors termed PK-R1 and PK-R2.		
Research Areas:	Angiogenesis/Cardiovascular		
AA Sequence:			
Human Prokineticin-2:	AVITGACDKD SQCGGGMCCA VSIWVKSIRI CTPMGKLGDS CHPLTRKVPF FGRRMHHTCP CLPGLACLRT SFNRFICLAQ K		
Murine Prokineticin-2:	MAVITGACDK DSQCGGGMCC AVSIWVKSIR ICTPMGQVGD SCHPLTRKSH VANGRQERRR AKRRKRKKEV PFWGRRMHHT CPCLPGLACL RTSFNRFICL ARK		
Estimated pI:	Human Prokineticin-2: 8.88 Murine Prokineticin-2: 10.77	Accession #:	Human Prokineticin-2: Q9HC23 Murine Prokineticin-2: Q9QXU7
NCBI Gene ID:	Human Prokineticin-2: 60675 Murine Prokineticin-2: 50501		

Product Name	Catalog Number	MW	AA
Recombinant Human Prokineticin-2	100-46	8.8 kDa	81
Recombinant Murine Prokineticin-2	315-38	11.6 kDa	103

Prolactin

Synonyms:	Mammotropin, Luterotropic hormone, Lutetropin		
Description:	Prolactin is a neuroendocrine hormone secreted by the pituitary gland. Its primary function is to promote and maintain lactation during pregnancy and suckling. In addition, prolactin plays an immunoregulatory role by stimulating the activities of ornithine decarboxylase and protein kinase C, which are important for the proliferation, differentiation, and function of lymphocytes.		
Research Areas:	Neurobiology, Stem Cells & Differentiation		
AA Sequence:			
Human Prolactin:	MLPICPGGAA RCQVTLRDLF DRAVVLSHYI HNLSSSEMFSE FDKRYTHGRG FITKAINSCH TSSLATPEDK EQAQQMNQKD FLISLIVSILR SWNEPLYHLV TEVRGMQEAP EAILS KAVEI EEQTKRLLEG MELIVSQVHP ETKENEIYPV WSGLPQLQMA DEESRLSAYY NLLHCLRRDS HKIDNYLKLK KCRIIHNNNC		
Murine Prolactin:	MLPICSAGDC QTSRLRELFDR VVILSHYIHT LYTDMFIEFD KQYVQDREFM VKVINDCPTS SLATPEDKEQ ALKVPPEVLL NLILSLVQSS SDPLFQLITG VGGIQEAP EY ILSRAKEIEE QNKQLLEGVE KIISQAYPEA KGNGIYFVWS QLPSLQGVDE ESKILSLRNT IRCLRRDSHK VDNFLKVLRC QIAHQNNC		
Rat Prolactin:	MLPVCSGGDC QTPLPELFDR VVMLSHYIHT LYTDMFIEFD KQYVQDREFI AKAINDCPTS SLATPEDKEQ AQKVPPEVLL NLILSLVHSW NDPLFQLITG LGGIHEAPDA IISRAKEIEE QNKRLLEGIE KIISQAYPEA KGNEIYLVWS QLPSLQGVDE ESKDLAFYNN IRCLRRDSHK VDNFLKFLRC QIVHKNNC		
Estimated pI:	Human Prolactin: 6.15 Murine Prolactin: 4.97 Rat Prolactin: 4.97	Accession #:	Human Prolactin: P01236 Murine Prolactin: P06879 Rat Prolactin: P01237
NCBI Gene ID:	Human Prolactin: 5617 Murine Prolactin: 19109 Rat Prolactin: 24683		

Product Name	Catalog Number	MW	AA
Recombinant Human Prolactin	100-07	23.0 kDa	200
Recombinant Murine Prolactin	315-16	22.5 kDa	198
Recombinant Rat Prolactin	400-27	22.6 kDa	198

PTHrP

Synonyms:	Parathyroid Hormone-related Protein		
Description:	PTHrP is a polypeptide hormone produced by almost every tissue of the body. PTHrP is closely related to parathyroid hormone (PTH), which is secreted from the parathyroid gland, and plays a central role in regulating the extracellular concentrations of calcium and phosphorous.		
Research Areas:	Angiogenesis/Cardiovascular, Apoptosis, Bone/Skeletal/Cartilage, Immune System		
AA Sequence:	AVSEHQLLHD KGKSIQDLRR RFFLHHLIAE IHTAEIRATS EVSPNSKPSP NTKNHPVRFG SDDEGRYLTQ ETNKVETYKE QPLKTP		
Estimated pI:	8.40	Accession #:	P12272
NCBI Gene ID:	5744		

Product Name	Catalog Number	MW	AA
Recombinant Human PTHrP	100-09	9.8 kDa	86

sRANK Ligand

Synonyms:	soluble Receptor Activator of NF-κB Ligand, TNFSF11, TRANCE (TNF-Related Activation-induced Cytokine), OPG, ODF (Osteoclast Differentiation Factor), CD254		
Description:	RANKL and RANK are members of the TNF superfamily of ligands and receptors that play an important role in the regulation of specific immunity and bone turnover. RANK (receptor) was originally identified as a dendritic cell-membrane protein, which, by interacting with RANKL, augments the ability of dendritic cells. These dendritic cells then stimulate naïve T-cell proliferation in a mixed lymphocyte reaction, promote the survival of RANK + T-cells, and regulate T-cell-dependent immune response. RANKL, which is expressed in a variety of cells, including osteoblasts, fibroblasts, activated T-cells and bone marrow stromal cells, is also capable of interacting with a decoy receptor called OPG. Binding of soluble OPG to sRANKL inhibits osteoclastogenesis by interrupting the signaling between stromal cells and osteoclastic progenitor cells, thereby leading to excess accumulation of bone and cartilage. Human RANKL is reactive on murine cells.		
Research Areas:	Apoptosis, Bone/Skeletal/Cartilage, Cancer, Diabetes/Weight Regulation, Immune System, Osteoporosis		
AA Sequence:			
Human sRANK Ligand (<i>E.coli</i> derived):	MEKAMVDGSW LDLAKRSKLE AQPFAHLTIN ATDIPSGSHK VSLSSWYHDR GWAKISNMTF SNGKLIVNQD GFYYLYANIC FRHHETSGDL ATEYLQLMVY VTKTSIKIPS SHTLMKGGST KYWSGNSEFH FYSINVG GFF KLRSGE EISI EVSNPSLLDP DQDATYFGAF KVRDID		
Human sRANK Ligand (<i>CHO</i> derived):	HHHHHHHHPS PGGSGGSQHI RAEKAMVDGS WLDLAKRSKL EAQPFAHLTI NATDIPSGSH KVSLSWYHD RGWGKISNMT FSNGKLIVNQ DGFYYLYANI CFRHHETSGD LATEYLQLMV YVTKTSIKIP SSHTLMKGG S TKYWSGNSEF HFYSINVG GFKLRSGE EIS IEVSNPSLLD PDQDATYFGA FKVRDID		
Murine sRANK Ligand (<i>E.coli</i> derived):	PAMMEGSWLD VAQRGKPEAQ PFAHLTINAA SIPSGSHKVT LSSWYHDRGW AKISNM TLSN GKLRVNQDGF YYLYANICFR HHETSGSVPT DYQLQLMVYV VTSIKIPSSH NLMKGGSTKN WSGNSEFH FY SINVG GFFKL RAGEEISI QV SNPSLLDPDQ DATYFGAFKV QDID		
Murine sRANK Ligand (<i>CHO</i> derived):	FSGAPAMMEG SWLDVAQRGK PEAQPFAHLT INAASIPSGS HKVTLSSWYH DRGWAKISNM TLSNGKLRVN QDGFYYLYAN ICFRHHETSG SVPTDYQLQM VYVVKTSIKI PSSHNLMKGG STKNWSGNSE FHFYSINVG G FFKL RAGEEI SIQVSNPSLL DPDQDATYFG AFKVQDID		
Rat sRANK Ligand:	PAMMEGSWLD VARRGKPEAQ PFAHLTINAA DIPSGSHKVS LSSWYHDRGW AKISNM TLSN GKLRVNQDGF YYLYANICFR HHETSGSVPA DYQLQLMVYV VTSIKIPSSH NLMKGGSTKN WSGNSEFH FY SINVG GFFKL RAGEEISVQV SNPSLLDPDQ DATYFGAFKV QDID		
Estimated pI:	Human sRANK Ligand (<i>E.coli</i> derived): 6.41 Accession #: Human sRANK Ligand (<i>E.coli</i> derived): O14788 Human sRANK Ligand (<i>CHO</i> derived): 7.35 Human sRANK Ligand (<i>CHO</i> derived): O14788 Murine sRANK Ligand (<i>E.coli</i> derived): 7.42 Murine sRANK Ligand (<i>E.coli</i> derived): O35235 Murine sRANK Ligand (<i>CHO</i> derived): 7.79 Murine sRANK Ligand (<i>CHO</i> derived): O35235 Rat sRANK Ligand: 7.42 Rat sRANK Ligand: Q9ESE2		
NCBI Gene ID:	Human sRANK Ligand (<i>E.coli</i> derived): 8600 Human sRANK Ligand (<i>CHO</i> derived): 8600 Murine sRANK Ligand (<i>E.coli</i> derived): 21943 Murine sRANK Ligand (<i>CHO</i> derived): 21943 Rat sRANK Ligand: 117516		

Product Name	Catalog Number	MW	AA
Recombinant Human sRANK Ligand (<i>E.coli</i> derived)	310-01	20.0 kDa	176
Animal-Free Recombinant Human sRANK Ligand (<i>E.coli</i> derived)	AF-310-01	20.0 kDa	176
Recombinant Human sRANK Ligand (<i>CHO</i> derived)	310-01C	22.1 kDa	197
Recombinant Murine sRANK Ligand (<i>E.coli</i> derived)	315-11	19.4 kDa	174
Recombinant Murine sRANK Ligand (<i>CHO</i> derived)	315-11C	19.8 kDa	178
Recombinant Rat sRANK Ligand	400-30	19.4 kDa	174

sRANK Receptor

Synonyms:	TNFRSF11A, ODFR (Osteoclast Differentiation Factor Receptor), ODAR (Osteoclast Differentiation and Activation Receptor), TRANCE Receptor, CD265		
Description:	RANKL and RANK are members of the TNF superfamily of ligands and receptors that play an important role in the regulation of specific immunity and bone turnover. RANK (receptor) was originally identified as a dendritic cell-membrane protein, which, by interacting with RANKL, augments the ability of dendritic. These dendritic cells then stimulate naïve T-cell proliferation, and promote the survival of RANK + T-cells. RANK is also expressed in a variety of tissues, including skeletal muscle, thymus, liver, colon, small intestine, and adrenal gland. The RANK/ RANKL interaction is important in the regulation of osteoclastogenesis, and in dendritic cell-mediated T-cell immune responses. Impairments in RANK signaling have been implicated in the induction of expansile osteolysis and Paget’s disease of bone (PDB2).		
Research Areas:	Cancer, Diabetes/Weight Regulation, Immune System, Osteoporosis		
AA Sequence:	MQIAPPCTSE KHYEHLGRCC NKCEPGKYMS SKCTTTSDSV CLPCGPDEYL DSWNEEDKCL LHKVCDTGKA LVAVVAGNST TPRRCAC TAG YHWSQDCECC RRNTECAPGL GAQHPLQLNK DTVCKPCLAG YFSDAFSSTD KCRPWTNCTF LGKRVEHHGT EKSDAVCSSS LPARK		
Estimated pI:	8.23	Accession #: Q9Y6Q6	
NCBI Gene ID:	8792		

Product Name	Catalog Number	MW	AA
Recombinant Human sRANK Receptor	310-08	19.3 kDa	175

RANTES (CCL5)

Synonyms:

Regulation upon Activation Normal T-cell Express Sequence, SIS-delta

Description:

RANTES is a CC chemokine that can signal through the CCR1, CCR3, CCR5 and US28 (cytomegalovirus receptor) receptors. It is a chemoattractant towards monocytes, memory T cells (CD4+/CD45RO), basophils, and eosinophils. RANTES also has the capability to inhibit certain strains of HIV-1, HIV-2 and simian immunodeficiency virus (SIV).

Research Areas:

AIDS/HIV, Allergy, Angiogenesis/Cardiovascular, Chemotaxis, Immune System, Inflammation, Neurobiology, Transplantation, Wound Healing

AA Sequence:

Human RANTES:

SPYSSDTTPC CFAYIARPLP RAHIKEYFYT SGKCSNPAVV FVTRKNRQVC ANPEKKWVRE YINSLEMS

Murine RANTES:

SPYGSDTTPC CFAYLSLALP RAHVKEYFYT SSKCSNLAVV FVTRNRQVC ANPEKKWVQE YINYLEMS

Rat RANTES:

SPYGSDTTPC CFAYLSLALP RAHVKEYFYT SSKCSNLAVV FVTRNRQVC ANPEKKWVQE YINYLEMS

Estimated pI:

Human RANTES: 9.77

Murine RANTES: 9.37

Rat RANTES: 9.37

Accession #: Human RANTES: P13501

Murine RANTES: P30882

Rat RANTES: P50231

NCBI Gene ID:

Human RANTES: 6352

Murine RANTES: 20304

Rat RANTES: 81780

Product Name	Catalog Number	MW	AA
Recombinant Human RANTES (CCL5)	300-06	7.8 kDa	68
Animal-Free Recombinant Human RANTES (CCL5)	AF-300-06	7.8 kDa	68
Recombinant Murine RANTES (CCL5)	250-07	7.8 kDa	68
Recombinant Rat RANTES (CCL5)	400-13	7.9 kDa	68

Relaxin-2

Synonyms:	H2 relaxin, RLN2		
Description:	Relaxin-2 is a peptide hormone structurally related to insulin, which is expressed in the placenta, decidua, prostate, and ovaries during pregnancy. Of the three known relaxin genes, relaxin-2 is the only relaxin known to circulate in the blood. Relaxin-2 binds specifically to the LGR7 and LGR8 receptors, previously identified as “orphan” G protein-coupled receptors. Signaling by relaxin-2 through its target receptors enhances the growth of pubic ligaments, and the ripening of the cervix during birth.		
Research Areas:	Angiogenesis/Cardiovascular		
AA Sequence:			
Alpha Chain:	QLYSALANKC CHVGCTKRSL ARFC		
Beta Chain:	DSWMEEVIKL CGRELVRAQI AICGMSTWS		
Estimated pI:	9.88	Accession #:	P04090
NCBI Gene ID:	6019		

Product Name	Catalog Number	MW	AA
Recombinant Human Relaxin-2	130-15	6.0 kDa	53

Relaxin-3

Synonyms:	H3 relaxin, Insulin-like peptide-7, INSL7		
Description:	Relaxin-3 is a secreted protein structurally related to insulin that is expressed primarily in the brain and central nervous system. Relaxin-3 has been identified as the ligand for the GPCR135 receptor, previously known as “somatostatin-like” or “angiotensin-like” peptide receptor, and has also been identified for binding specifically to the LGR7 receptor, previously identified as an “orphan” G protein-coupled receptor. Signaling by relaxin-3 through its target receptors is, most likely, part of a CNS processing system, activated in response to signaling by neuropeptides and other factors. Intracerebroventricular injections of relaxin-3 have been shown to cause a significant increase of food intake and body weight in Wistar rats.		
Research Areas:	Diabetes/Weight Regulation, Lipid Metabolism, Neurobiology		
AA Sequence:			
Alpha Chain:	DVLAGLSSSC CKWGCSKSEI SSLC		
Beta Chain:	RAAPYGVRLC GREFIRAVIF TCGGSRW		
Estimated pI:	11.08	Accession #: Q8WXF3	
NCBI Gene ID:	117579		

Product Name	Catalog Number	MW	AA
Recombinant Human Relaxin-3	130-10	5.5 kDa	51

RELMα

Synonyms:

Resistin-like α, Cysteine-rich secreted protein FIZZ1

Description:

RELMα belongs to a unique family of tissue-specific cytokines termed FIZZ (found in inflammatory zone) and RELM. The four known members of this family, resistin, RELMα, RELMβ, and RELMγ, are 85-94 amino acid, secreted proteins sharing a conserved C-terminal domain, characterized by 10 cysteine residues with a unique spacing motif of C-X11-C-X8-C-X-C-X3-C-X10-C-X-C-X-C-X9-C-C. RELMα and resistin are secreted exclusively by adipocytes, while RELMβ is expressed in the epithelium of the colon and small bowel. The physiological role and molecular targets of RELMα are still unknown.

Research Areas:

Diabetes/Weight Regulation, Immune System, Inflammation

AA Sequence:

MDETIEIIVE NKVKELLANP ANYPSTVTKT LSCTSVKTMN RWASCPAGMT ATGCACGFAC GSWEIQSGDT
CNCLCLLDVW TTARCCQLS

Estimated pI:

4.61

Accession #:

Q9EP95

NCBI Gene ID:

57262

Product Name	Catalog Number	MW	AA
Recombinant Murine RELMα	450-26	10.0 kDa	89

RELMβ

Synonyms:	Resistin-like β, Cysteine-rich secreted protein FIZZ2		
Description:	RELMβ (Resistin-like molecule β/FIZZ2) is a disulfide-linked, homodimeric protein expressed in the epithelium of the colon and small bowel. The biological functions of RELMβ, and its molecular targets, are not fully known, but it has been suggested that it plays a regulatory role during inflammation, and may also act to establish links among adipose tissue, the intestine and the liver. Interestingly, the molecular structure of RELMβ is highly homologous to that of the adipose-derived cytokines, resistin and RELMα. These proteins share a highly conserved C-terminal domain, characterized by 10 cysteine residues with a unique spacing motif of C-X11-C-X8-C-X-C-X3-C-X10-C-X-C-X-C-X9-C-C.		
Research Areas:	Diabetes/Weight Regulation, Immune System, Inflammation		
AA Sequence (monomer):			
Human RELMβ:	MQCSLDSVMD KIKDVLNSL EYSPSPISKK LSCASVKSQG RPSSCPAGMA VTGCACGYGC GSWDVQLETT CHCQCSVVDW TTARCCHLT <i>*Cysteine-3 (Pink) is used for an inter-chain disulfide bridging</i>		
Murine RELMβ:	MQCSFESLVD QRIKEALSRQ EPKTISCTSV TSSGRLASCP AGMVVTGCAC GYGCSWDIR NGNTCHCQCS VMDWASARCC RMA <i>*Cysteine-3 (Pink) is used for an inter-chain disulfide bridging</i>		
Estimated pI:	Human RELMβ: 8.75 Murine RELMβ: 9.89	Accession #: Human RELMβ: Q9BQ08 Murine RELMβ: Q99P86	
NCBI Gene ID:	Human RELMβ: 84666 Murine RELMβ: 57263		

Product Name	Catalog Number	MW	AA
Recombinant Human RELMβ	450-22	19.0 kDa	178
Recombinant Murine RELMβ	450-26B	18.0 kDa	166

RELM γ

Synonyms:	Resistin-like γ		
Description:	RELM γ belongs to a unique family of tissue-specific cytokines termed FIZZ (found in inflammatory zone) and RELM. The other three known members of this family, resistin, RELM α , and RELM β , are 85-94 amino acid, secreted proteins sharing a conserved C-terminal domain, characterized by 10 cysteine residues with a unique spacing motif of C-X11-C-X8-C-X-C-X3-C-X10-C-X-C-X-C-X9-C-C. RELM γ is most closely related to RELM α , but is distinctly secreted in the bone marrow, spleen, lung, and peripheral blood granulocytes. The physiological role of RELM γ may include the promotion or regulation of promyelocytic differentiation, although the specific molecular targets of RELM γ have not been identified.		
Research Areas:	Immune System, Inflammation		
AA Sequence:	EGTLESIVEK KVKELLANRD DCPSTVTKTF SCTSITASGR LASCPSGMTV TGCACGYGCG SWDIRDGNTC HCQCSTMDWA TARCCQLA		
Estimated pI:	5.58	Accession #: Q8K426	
NCBI Gene ID:	245195		

Product Name	Catalog Number	MW	AA
Recombinant Murine RELM γ	450-26G	9.2 kDa	88

Resistin

Synonyms:	FIZZ3, Adipose tissue-specific secretory factor, ADSF
Description:	Resistin belongs to a family of tissue-specific cytokines termed FIZZ (found in inflammatory zones) and RELM. The four known members of this family, resistin, RELM α , RELM β , and RELM γ , share a highly conserved C-terminal domain, characterized by 10 cysteine residues with a unique spacing motif of C-X11-C-X8-C-X-C-X3-C-X10-C-X-C-X-C-X9-C-C. Resistin is an adipose-derived cytokine (adipokine) whose physiological function and molecular targets are largely unknown. Studies have shown that resistin suppresses insulin's ability to stimulate glucose uptake, and postulated that resistin might be an important link between obesity and Type 2 diabetes. Other studies have indicated that resistin expression is severely suppressed in obesity, and that it may act as a feedback regulator of Adipogenesis.
Research Areas:	Angiogenesis/Cardiovascular, Diabetes/Weight Regulation, Immune System, Inflammation
AA Sequence (monomer):	
Human Resistin:	SSKTL C SMEE AINERIQEVA GSLIFRAISS IGLECQSVTS RGDLATCPRG FAVTGCTCGS ACGSWDVRAE TTCHCQCAGM DWTGARCCRV QP <i>*Cysteine-6 (Pink) is used for an inter-chain disulfide bridging</i>
Murine Resistin:	SSMPL C PIDE AIDKKIKQDF NSLFPNAIKN IGLNCWTVSS RGKLASCPEG TAVLSCSCGS ACGSWDIREE KVCHCQCARI DWTAARCCKL QVAS <i>*Cysteine-3 (Pink) is used for an inter-chain disulfide bridging</i>
Rat Resistin:	PSMSLCPMDE AISKKINQDF SLLPAAMKN TVLHCWSVSS RGRLASCPEG TTVTSCSCGS GCGSWDVRED TMCHCQCGSI DWTAARCCTL RVGS
Estimated pI:	Human Resistin: 5.62 Murine Resistin: 9.25 Rat Resistin: 7.32
	Accession #: Human Resistin: Q9HD89 Murine Resistin: Q99P87 Rat Resistin: Q8K4J7
NCBI Gene ID:	Human Resistin: 56729 Murine Resistin: 57264 Rat Resistin: 246250

Product Name	Catalog Number	MW	AA
Recombinant Human Resistin	450-19	19.5 kDa	184
Recombinant Murine Resitin	450-28	20.2 kDa	188
Recombinant Rat Resitin	400-35	20.0 kDa	188

ROR1

Synonyms: NTRKR1, Neurotrophic tyrosine kinase, Receptor-related 1, Tyrosine-protein kinase transmembrane receptor ROR1, Receptor-tyrosine-kinase-like orphan receptor 1

Description: Receptor-tyrosine-kinase-like orphan receptor 1 (ROR1) is a tumor-associated, surface protein predominantly expressed during embryogenesis, where it is involved in organ morphogenesis, nervous system development, and neural progenitor cell maintenance and survival. Virtually absent from normal pediatric and adult tissues, with the exception of low-level expression in a subset of immature B-cell precursors known as hematogones and adipocytes, ROR1 is notably overexpressed, and considered a survival factor, in a number of B lymphoid and epithelial malignancies: most notably, but not exclusively, including chronic lymphocytic leukemia (CLL), mantle cell lymphoma (MCL), acute lymphoblastic leukemia (ALL), marginal zone lymphoma, lung adenocarcinoma. First identified during PCR-based cloning of a human neuroblastoma cell line in search of tyrosine kinases similar to tropomyosin-receptor-kinase (Trk) neurotropic receptors, ROR1, along with the related receptor tyrosine kinase (RTK) ROR2, was catalogued as an “orphan” receptor due to the fact its related ligand remained elusive. Wnt-5a has since been suggested as a candidate ligand for ROR1, and ROR1 has been implicated to function as a pseudokinase, promoting proliferation and resistance to apoptosis in cancer cells through interaction with Wnt-5a, and TCL1-co-activation of AKT. ROR1 is expressed as a glycoprotein containing extracellular immunoglobulin (Ig)-like, Frizzled, and Kringle domains, as well as an intracellular region containing a tyrosine kinase domain.

Research Areas: Cancer, Neurobiology, Stem Cells & Differentiation

AA Sequence: QETELSVSAE LVPTSSWNIS SELNKDSYLT LDEPMNITT SLGQTAE LHC KVS GNP PPTI RWF KNDAPVV
QEP RRLSFRS TIYGSRLRIR NLDTTDTGYF QCVATNGKEV VSSTGVLFVK FGPPPTASPG YSDEYEEDGF
CQPYRGIACA RFIGNRTVYM ESLHMQGEIE NQITAAFTMI GTSSHLSDKC SQFAIPSLCH YAFPYCDETS
SVPKPRDLCR DECEILENVL CQTEYIFARS NPMILMRLKL PNCELDLPQE SPEAANCIRI GIPMADPINK
NHKCYNSTGV DYRGTVSVTK SGRQCQPWNS QYPHTHTFTA LRFPELNGGH SYCRNPGNQK EAPWCFTLDE
NFKSDLCDIP ACDSKDSKEK NKMEILY

Estimated pI: 5.25 **Accession #:** Q01973

NCBI Gene ID: 4919

Product Name	Catalog Number	MW	AA
Recombinant Human ROR1	160-04	42.4 kDa	377

R-Spondin-1

Synonyms:	Roof plate-specific Spondin-1, RSPO1		
Description:	R-Spondin-1 (Rspo-1) belongs to the (Rspo) family of Wnt modulators. Currently, the family consists of four structurally related secreted ligands (Rspo 1-4), all containing the furin-like and thrombospondin structural domains. Rspo-1 is expressed in certain areas of the developing central nervous system, as well as in the adrenal glands, ovary, testes, thyroid, and trachea. Rspo can interact with the Frizzled/LRP6 receptor complex in a manner that stimulates the Wnt/beta-catenin signaling pathway.		
Research Areas:	Cancer, Neurobiology, Stem Cells & Differentiation		
AA Sequence:	SRGIKGKRQR RISAEGSQAC AKGCELCSEV NGCLKCSPKL FILLERNDIR QVGVCLPSCP PGYFDARNPD MNKCIKCKIE HCEACFSHNF CTKCKEGLYL HKGRCYPACP EGSSAANGTM ECSSPAQCEM SEWSPWGPCS KKQQLCGFRR GSEERTRRVL HAPVGDHAAC SDTKETRRC T VRRVPCPEGQ KRRKGGQGRR ENANRNLARK ESKEAGAGSR RRKGQQQQQQ QGTVGPLTSA GPA		
Human R-Spondin-1:			
Murine R-Spondin-1:	SRGIKGKRQR RISAEGSQAC AKGCELCSEV NGCLKCSPKL FILLERNDIR QVGVCLPSCP PGYFDARNPD MNKCIKCKIE HCEACFSHNF CTKCQEGLYL HKGRCYPACP EGSTAANSTM ECGSPAQCEM SEWSPWGPCS KKRKLCGFRK GSEERTRRVL HAPGGDHTTC SDTKETRKCT VRRTPCPEGQ KRRKGGQGRR ENANRHPARK NSKEPGSNSR RHKGQQQPQP GTTGPLTSVG PTWAQ		
Estimated pI:	Human R-Spondin-1: 10.93 Murine R-Spondin-1: 9.77	Accession #: Human R-Spondin-1: Q2MKA7 Murine R-Spondin-1: Q9Z132	
NCBI Gene ID:	Human R-Spondin-1: 284654 Murine R-Spondin-1: 192199		

Product Name	Catalog Number	MW	AA
Recombinant Human R-Spondin-1	120-38	26.7 kDa	243
Recombinant Murine R-Spondin-1	315-32	27.0 kDa	245

R-Spondin-2

Synonyms:	Roof plate-specific Spondin-2, RSPO2		
Description:	The R-Spondin (Rspo) proteins belong to the Rspo family of Wnt modulators. Currently, the family consists of four structurally-related, secreted ligands (Rspo 1-4), all containing furin-like and thrombospondin structural domains. The Rspo proteins can interact with the Frizzled/LRP6 receptor complex in a manner that causes the stabilization, and resulting accumulation, of the intracellular signaling protein, β -catenin. This activity effectively activates and increases the subsequent nuclear signaling of β -catenin. R-Spondin can also bind to the previously discovered G-protein coupled receptors, LGR-4 and LGR-5. Rspo/ β -catenin signaling can act as an inducer of the transformed phenotype, and can also regulate the proliferation and differentiation of certain stem cell populations.		
Research Areas:	Cancer, Neurobiology, Stem Cells & Differentiation		
AA Sequence:	ASYVSNPICK GCLSCSKDNG CSRCQQKLFF FLRREGMRQY GECLHSCPSG YYGHRAPDMN RCARCRIENC DSCFSKDFCT KCKVG FYLHR GRCFDECPDG FAPLEETMEC VEGCEVGHWS EWGTC SRNNR TCGFKWGLET RTRQIVKKPV KDTILCPTIA ESRRCKMTMR HCPGGK RTPK AKEKR NKKKK RKLIERAQEQ HSVFLATDRA NQ		
Estimated pI:	10.27	Accession #: Q6UXX9	
NCBI Gene ID:	340419		

Product Name	Catalog Number	MW	AA
Recombinant Human R-Spondin-2	120-43	24.4 kDa	212

R-Spondin-3

Synonyms:	Roof plate-specific Spondin-3, RSPO3, PWTSR, THSD2		
Description:	The R-Spondin (Rspo) proteins belong to the Rspo family of Wnt modulators. Currently, the family consists of four structurally-related, secreted ligands (Rspo 1-4), all containing furin-like and thrombospondin structural domains. The Rspo proteins can interact with the Frizzled/LRP6 receptor complex in a manner that causes the stabilization, and resulting accumulation, of the intracellular signaling protein, β -catenin. This activity effectively activates and increases the subsequent nuclear signaling of β -catenin. R-Spondin can also bind to the previously discovered G-protein coupled receptors, LGR-4 and LGR-5. Rspo/ β -catenin signaling can act as an inducer of the transformed phenotype, and can also regulate the proliferation and differentiation of certain stem cell populations.		
Research Areas:	Angiogenesis/Cardiovascular, Cancer, Neurobiology, Stem Cells & Differentiation		
AA Sequence:	MHPNVSQGCQ GGCATCSDYN GCLSCKPRLF FALERIGMKQ IGVCLSSCPs GYYGTRYPDI NKCTKCKADC DTCFNKNFCT KCKSGFYHLH GKCLDNCPEG LEANNHTMEC VSIVHCEVSE WNPWSPCTKK GKTCGFKRGT ETRVREIIQH PSAKGNLCPF TNETRKCTVQ RKKCQKGERG KKGREKRKKK PNKGESKEAI PDSKSLESSK EIPEQRENKQ QQKKRKVQDK QKSVSVSTVH		
Estimated pI:	9.98	Accession #: Q9BXY4	
NCBI Gene ID:	84870		

Product Name	Catalog Number	MW	AA
Recombinant Human R-Spondin-3	120-44	26.9 kDa	240

SCF

Synonyms:	Stem Cell Factor, c-Kit Ligand, Mast Cell Growth Factor (MGF), Steel Factor		
Description:	SCF is a hematopoietic growth factor that exerts its activity by signaling through the c-Kit receptor. SCF and c-Kit are essential for the survival, proliferation and differentiation of hematopoietic cells committed to the melanocyte and germ cell lineages. Human SCF manifests low activity on murine cells, while murine and rat SCF are fully active on human cells. The human SCF gene encodes for a 273 amino acid transmembrane protein, which contains a 25 amino acid N-terminal signal sequence, a 189 amino acid extracellular domain, a 23 amino acid transmembrane domain, and a 36 amino acid cytoplasmic domain. The secreted soluble form of SCF is generated by proteolytic processing of the membrane anchored precursor.		
Research Areas:	Immune System, Stem Cells & Differentiation		
AA Sequence:			
Human SCF:	MEGICRNRVT NNVKDVTKLV ANLPKDYMIT LKYVPGMDVL PSHCWISEMV VQLSDSLTDL LDKFSNISEG LSNYSIIDKL VNIVDDLVEC VKENSSKDLK KSFKSPEPRL FTPEEFFRIF NRSIDAFKDF VVASETSDCV VSSTLSPEKD SRVSVTKPFM LPPVA		
Murine SCF:	MKEICGNPVT DNVKDITKLV ANLPNDYMIT LNYVAGMDVL PSHCWLRDMV IQLSLSLTTL LDKFSNISEG LSNYSIIDKL GKIVDDLVL MEENAPKNIK ESPKRPETRS FTPEEFSIF NRSIDAFKDF MVASDTSDCV LSSTLGPEKD SRVSVTKPFM LPPVA		
Rat SCF:	MQEICRNPVT DNVKDITKLV ANLPNDYMIT LNYVAGMDVL PSHCWLRDMV THLSVSLTTL LDKFSNISEG LSNYSIIDKL GKIVDDLVC MEENAPKNVK ESLKKPETRN FTPEEFSIF NRSIDAFKDF MVASDTSDCV LSSTLGPEKD SRVSVTKPFM LPPVA		
Estimated pI:	Human SCF: 4.89 Murine SCF: 4.59 Rat SCF: 4.71	Accession #: Human SCF: P21583 Murine SCF: P20826 Rat SCF: P21581	
NCBI Gene ID:	Human SCF: 4254 Murine SCF: 17311 Rat SCF: 60427		

Product Name	Catalog Number	MW	AA
Recombinant Human SCF	300-07	18.4 kDa	165
Animal-Free Recombinant Human SCF	AF-300-07	18.4 kDa	165
PeperoGMP® Recombinant Human SCF	GMP300-07	18.4 kDa	165
Recombinant Murine SCF	250-03	18.3 kDa	165
Animal-Free Recombinant Murine SCF	AF-250-03	18.3 kDa	165
Recombinant Rat SCF	400-22	18.4 kDa	165
Animal-Free Recombinant Rat SCF	AF-400-22	18.4 kDa	165

SCGF-α, -β

Synonyms:

Stem Cell Growth Factor-α, Stem Cell Growth Factor-β

Description:

SCGF-α and -β are hematopoietic growth factors that exert their activity at early stages of hematopoiesis. The SCGFs are non-glycosylated, species-specific cytokines that can support growth of primitive hematopoietic cells, and, in combination with EPO or GM-CSF, promote proliferation of erythroid or myeloid progenitors, respectively.

Research Areas:

Bone/Skeletal/Cartilage, Stem Cells & Differentiation

AA Sequence:

Human SCGF-α:

GHGARGAERE WEGGWGGAQE EEREREALML KHLQEALGLP AGRGDENPAG TVEGKEDWEM EEDQGEEEEEE
EATPTPSSGP SPSPTPEDIV TYILGRLAGL DAGLHQLHVR LHALDTRVVE LTQGLRQLRN AAGDTRDAVQ
ALQEAQGRAE REHGRLEGCL KGLRLGHKCF LLSRDFEAQA AAQARCTARG GSLAQPADRQ QMEALTRYLR
AALAPYNWPV WLGVHDRRAE GLYLFENGQR VSFFAWHRSP RPELGAQPSA SPHPLSPDQP NGGTLENCVA
QASDDGSWWD HDCQRRLYYV CEFPP

Human SCGF-β:

MHGARGAER EWEGGWGGAQ EEEREREALM LKHLQEALGL PAGRGDENPA GTVEGKEDWE MEEDQGEEEE
EEATPTPSSG PSPSPTPEDI VTYILGRLAG LDAGLHQLHV RLHALDTRVV ELTQGLRQLR NAAGDTRDAV
QALQEAQGRA EREHGRLEGCL KGLRLGHKC FLLSRDFEAQ PSASPHPLSP DQPNGGTLEN CVAQASDDGS
WWDHDCQRRLL YYVCEFPF

Estimated pI:

Human SCGF-α: 4.89
Human SCGF-β: 4.51

Accession #: Human SCGF-α: Q9Y240
Human SCGF-β: Q9Y240

NCBI Gene ID:

Human SCGF-α: 6320
Human SCGF-β: 6320

Product Name	Catalog Number	MW	AA
Recombinant Human SCGF-α	100-22A	33.9 kDa	305
Recombinant Human SCGF-β	100-22B	25.0 kDa	227

Sclerostin

Synonyms:	SOST, SOST1, CDD, VBCH, DAND6
Description:	Sclerostin, a glycoprotein predominantly secreted by osteocytes, is a member of the Cerberus/DAN family of putative BMP antagonists that functions as an endogenous regulator of the canonical Wnt signaling pathway and an inhibitory regulator of bone homeostasis. Although expressed nearly exclusively by osteocytes, sclerostin can also be found at significant levels elsewhere, such as bone, bone marrow, cartilage, the kidney, and the liver, and has also been shown to be produced by hypertrophic chondrocytes and cementocytes. Like DKK family members DKK-1 and DKK-4, sclerostin plays an important regulatory role in the Wnt/ β -catenin signaling pathway by forming inhibitory complexes with LDL Receptor-related proteins 5 and 6 (LRP5 and LRP6), which are essential components of the Wnt/ β -catenin signaling system. LRP5 and LRP6 are single-pass transmembrane proteins that appear to act as co-receptors for Wnt ligands involved in the Wnt/ β -catenin signaling cascade. Sclerostin has also been shown to interact directly with LRP4 via its extracellular domain to facilitate inhibition of Wnt signaling, and can catabolically promote osteoclast activity by increasing osteocyte expression of RANKL. Sclerostin's critical involvement in the regulation of bone formation and resorption is emphasized by two bone dysplasia disorders, sclerosteosis and van Buchem disease (VBD), caused by rare autosomal recessive mutations that result in progressive bone overgrowth and hypermineralization due to markedly decreased sclerostin levels.
Research Areas:	Bone/Skeletal/Cartilage, Diabetes/Weight Regulation, Stem Cells & Differentiation
AA Sequence:	AFKNDATEII PELGEYPEPP PELENNKTMN RAENGGRPPH HPFETKDVSE YSCRELHFTR YVTDGPCRSA KPVTELVCSG QCGPARLLPN AIGRGKWWRP SGPDFRCIPD RYRAQRVQLL CPGGEAPRAR KVRLVASCKC KRLTRFHNQS ELKDFGTEAA RPQKGRKPRP RARSAKANQA ELENAY
Estimated pI:	9.81
NCBI Gene ID:	50964
	Accession #: Q9BQB4

Product Name	Catalog Number	MW	AA
Recombinant Human Sclerostin	100-49	21.0 kDa	186

SDF-1α, -1β (CXCL12)

Synonyms:	Stromal-Cell Derived Factor-1, PBSF		
Description:	SDF-1α and β are stromal-derived, CXC chemokines that signal through the CXCR4 receptor. SDF-1α and β chemoattract B and T cells, and have been shown to induce migration of CD34+ stem cells. Additionally, the SDF-1 proteins exert HIV-suppressive activity in cells expressing the CXCR4 receptor. Human and murine SDF-1 proteins act across species. SDF-1α and β contain the four highly conserved cysteine residues present in CXC chemokines. The mature SDF-1α protein is the result of alternative splicing of the SDF-1 gene and contains 68 amino acid residues.		
Research Areas:	AIDS/HIV, Chemotaxis, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Wound Healing		
AA Sequence:			
Human SDF-1α:	KPVLSYRCP CRFFESHVAR ANVKHLKILN TPNCALQIVA RLKNNNRQVC IDPKLKWIQE YLEKALNK		
Murine SDF-1α:	KPVLSYRCP CRFFESHIAR ANVKHLKILN TPNCALQIVA RLKNNNRQVC IDPKLKWIQE YLEKALNK		
Rat SDF-1α:	KPVLSYRCP CRFFESHVAR ANVKHLKILN TPNCALQIVA RLKSNNRQVC IDPKLKWIQE YLDKALNK		
Human SDF-1β:	KPVLSYRCP CRFFESHVAR ANVKHLKILN TPNCALQIVA RLKNNNRQVC IDPKLKWIQE YLEKALNKRFKM		
Murine SDF-1β:	KPVLSYRCP CRFFESHIAR ANVKHLKILN TPNCALQIVA RLKNNNRQVC IDPKLKWIQE YLEKALNKRLKM		
Rat SDF-1β:	KPVLSYRCP CRFFESHVAR ANVKHLKILN TPNCALQIVA RLKSNNRQVC IDPKLKWIQE YLDKALNKRLKM		
Estimated pI:	Human SDF-1α: 10.46 Murine SDF-1α: 10.46 Rat SDF-1α: 10.46 Human SDF-1β: 10.81 Murine SDF-1β: 10.81 Rat SDF-1β: 10.81	Accession #:	Human SDF-1α: P48061 Murine SDF-1α: P40224 Rat SDF-1α: Q9QZD1 Human SDF-1β: P48061 Murine SDF-1β: P40224 Rat SDF-1β: Q9QZD1
NCBI Gene ID:	Human SDF-1α: 6387 Murine SDF-1α: 20315 Rat SDF-1α: 24772 Human SDF-1β: 6387 Murine SDF-1β: 20315 Rat SDF-1β: 24772		

Product Name	Catalog Number	MW	AA
Recombinant Human SDF-1α (CXCL12)	300-28A	8.0 kDa	68
Animal-Free Recombinant Human SDF-1α (CXCL12)	AF-300-28A	8.0 kDa	68
Recombinant Murine SDF-1α (CXCL12)	250-20A	7.9 kDa	68
Recombinant Rat SDF-1α (CXCL12)	400-32A	7.9 kDa	68
Recombinant Human SDF-1β	300-28B	8.5 kDa	72
Animal-Free Recombinant Human SDF-1β	AF-300-28B	8.5 kDa	72
Recombinant Murine SDF-1β	250-20B	8.5 kDa	72
Recombinant Rat SDF-1β (CXCL12)	400-32B	8.4 kDa	72

Semaphorin 3A

Synonyms:	SEMA3A, SEMAD									
Description:	Semaphorins are a large group of structurally-related, secreted, GPI-anchored, transmembrane, cell-signaling molecules. There are 8 major classifications of Semaphorins (the first seven ordered by number, 1-7, and the eighth designated V for virus), which are characterized by the existence of a conserved 500 amino acid SEMA domain at the amino terminus. Classes 3, 4, 6, and 7 are found in vertebrates only, whilst class 5 is found in both vertebrates and invertebrates. Each class is then divided into additional subgroups based on shared structural characteristics. Semaphorins primarily function as axon growth cone guidance factors during neuronal development. Semaphorin 3A acts as a chemo-repellent to axons, and an inhibitor of the growth of axons by signaling through receptors, Neuropilin-1 and Plexin-A.									
Research Areas:	Immune System, Neurobiology									
AA Sequence (monomer):	HHHHHHHHGK NNVPRCLKLSY KEMLESNNVI TFNGLANSSS YHTFLLDEER SRLYVGAKDH IFSFDLVNIK DFQKIVWPVS YTRRDECKWA GKDILKECAN FIKVLKAYNQ THLYACGTGA FHPICTYIEI GHHPEDNIFK LENSHFENGK GKSPYDPKLL TASLLIDGEL YSGTAADFMG RDFAIFRTLK HHHPIRTEQH DSRWLNDPKF ISAHLISESD NPEDDKVYFF FRENIDGEGH SGKATHARIG QICKNDFGGH RSLVNKWTTF LKARLICSVP GPNIDTHFD ELQDVFLMNF KDPKNPVVYG VFTTSSNIFK GSAVCMYSMS DVRRVFLGPY AHRDGPNIQW VPYQGRVPYP RPGTCPSKTF GGFDSTKDLP DDVITFARSH PAMYNPVFPM NNRPIVIKTD VNYQFTQIVV DRVDAEDGQY DVMFIGTDVG TVLKVVSIPK ETWYDLEEV LLEMTVFREP TAISAMELST KQQQLYIGST AGVAQLPLHR CDIYGKACAE CCLARDPYCA WDGSACSRYP PTAKRATRAQ DIRNGDPLTH CSDLHHDNHH GHSPEERIIY GVENSSTFLE CSPKSQRALV YWQFQRRNEE RKEEIRVDDH IIRTDQGLLL RSLQQKDSGN YLCHAVEHGF IQTLLKVTLE VIDTEHLEEL LHKDDDDGDS KTKEMSNSMT PSQKVWYRDF MQLINHPNLN TMDEFCEQVW KRDRKQRRQR PGHTPGNSNK WKHLQENKKG RNRRTHEFER APRSVGGPKS CDKTHTCPPC PAPELLGGPS VFLFPPKPKD TLMISRTPEV TCVVVDVSHE DPEVKFNWYV DGVEVHNAKT KPREEQYNST YRVVSVLTVL HQDWLNGKEY KCKVSNKALP APIEKTISKA KGQPREPQVY TLPPSRDELT KNQVSLTCLV KGFYPSDIAV EWESNGQPEN NYKTTTPVLD SDGSFFLYSK LTVDKSRWQQ GNVFSCSVMH EALHNHYTQK SLSLSPGK									
Estimated pI:	7.14		Accession #: Q14563							
NCBI Gene ID:	10371									

Product Name	Catalog Number	MW	AA
Recombinant Human Semaphorin 3A Fc	150-17H	226.2 kDa	1976

SF-20

Synonyms:

Myeloid-derived growth factor (MYDGF)

Description:

Murine SF-20 is a bone marrow stroma-derived growth factor. SF-20 is expressed in bone marrow, spleen stroma cells, resting mononuclear cells, resting CD8+ and CD19+ cells, and activated CD8+ T cells, and has been shown to bind to the surface of cells expressing the receptor TSA-1 (Thymic shared Ag-1). Among its biological activities, SF-20 stimulates the proliferation of FDC-P2 cells (a mouse factor-dependent hemopoietic cell line) and mouse lymphoid cells.

Research Areas:

Immune System

AA Sequence:

MVSEPTTVPF DVRPGGVVHS FSQDVGPNGK FTCTFTYASQ GGTNEQWQMS LGTSEDSQHF TCTIWRPQ GK
SYLYFTQFKA ELRGAEIEYA MAYSKAAFER ESDVPLKSEE FEVTKTAVSH RPGAFKAELS KLVIVAKAAR
SEL

Estimated pI:

5.89

Accession #:

Q9CPT4

NCBI Gene ID:

28106

Product Name	Catalog Number	MW	AA
Recombinant Murine SF-20	210-25	15.8 kDa	143

Slit2-N

Synonyms: Slit homolog 2 protein, SLIL3

Description: Slit2 is a member of the Slit family that signals through the Roundabout (Robo) receptor as a repellent for axon guidance and neuronal migration, and also acts as a chemoattractant to vascular endothelial cells and a chemotaxis inhibitor for leukocytes. Slit2 is expressed primarily in the fetal lung, kidney, and adult spinal cord, and to a lesser extent in the adult adrenal gland, thyroid and trachea. Slit2 is initially synthesized as a 1499 amino acid precursor, which is subsequently cleaved into N-terminal and C-terminal fragments, designated as Slit2-N and Slit2-C respectively. The neurodevelopment-related activities, as measured by the ability to repel olfactory bulb axons and to induce branching in dorsal root ganglia axons, are contained only in the N-terminal fragment.

Research Areas: AIDS/HIV, Angiogenesis/Cardiovascular, Cancer, Chemotaxis, Immune System, Neurobiology, Wound Healing

AA Sequence: QACPAQCSCS GSTVDCHGLA LRSVPRNIPR NTERLDLNGN NITRITKTDF AGLRHLRVLQ LMENKISTIE
RGA FQDLKEL ERLRLNRNHL QLFPELLFLG TAKLYRLDLS ENQIQAI PRK AFRGAVDIKN LQLDYNQISC
IEDGA FRALR DLEVLT LNNN NITRLSVASF NHMPKLRTFR LHSNNLYCDC HLA WLSDWLR QRPRVGLYTQ
CMGPSHLRGH NVAEVQKREF VCSGHQSFMA PSCSVLHCPA ACTCSNNIVD CRGKGLTEIP TNL PETITEI
RLEQNTIKVI PPGAFSPYKK LRRIDLSNNQ ISELAPDAFQ GLRSLNSLV L YGNKITELPK SLFEG LFSLQ
LLLLNANKIN CLRVD AFQDL HNLNLLSLYD NKLQTIAGKT FSP LRAIQTM HLAQNPFICD CHLKW LADYL
HTNPIETSGA RCTSPRRLAN KRIGQIKSKK FRCSAKEQYF IPGTEDYRSK LSGDCFADLA CPEKCRCEGT
TVDCSNQKLN KIPEHIPQYT AELRLNNNEF TVLEATGIFK KLPQLRKINF SNNKITDIEE GAFEGASGVN
EILLTSNRLE NVQH KMFKGL ESLKTLMLRS NRITCVGNDS FIGLSSVRL L SLYDNQITTV APGAFDTLHS
LSTLNLLANP FNCNCYLAWL GEWL RKKRIV TGNPRCQKPY FLKEIPIQDV AIQDFTCDDG NDDNSCSPLS
RCPTECTCLD TVVRC SNKGL KVL PKGIPRD VTELYLDGNQ FTLVPKELSN YKHLTLIDL S NNRISTLSNQ
SFSNMTQLLT LILSYNRLRC IPPRTFDGLK SLRLLSLHGN DISV VPEGAF NDLSALSHLA IGANPLYCDC
NMQWLSDWVK SEYKEPGIAR CAGPGEMADK LLLTTPSKKF TCQGPVDVNI LAKCNPCLSN PCKNDGTCNS
DPVDFYRCTC PYGFKGQDCD VPIHACISNP CKHGGTCHLK EGEEDGFWCI CADGFEGENC EVNVDDCEDN
DCENNSTCVD GINNYTCLCP PEYTGELCEE KLD FCAQDLN PCQHDSKCIL TPKGFKCDCT PGYVGEHCDI
DFDDCQDNKC KNGAHCTDAV NGYTCICPEG YSGLFCEFP SP PMV

Estimated pI: 6.56 **Accession #:** O94813

NCBI Gene ID: 9353

Product Name	Catalog Number	MW	AA
Recombinant Human Slit2-N	150-11	122.35 kDa	1093

Sonic Hedgehog (Shh)

Synonyms:	Hhg-1
Description:	Members of the Hedgehog (Hh) family are highly conserved proteins that are widely represented throughout the animal kingdom. The three known mammalian Hh proteins, Sonic (Shh), Desert (Dhh) and Indian (Ihh), are structurally related, and share a high degree of amino acid sequence identity (e.g. Shh and Ihh are 93% identical). The biologically active form of each Hh molecule is obtained by autocatalytic cleavage of their precursor proteins, and each corresponds to approximately one half of the N-terminal portion of the precursor molecule. Although Hh proteins have unique expression patterns and distinct biological roles within their respective regions of secretion, they use the same signaling pathway and can be substituted for one another in experimental systems.
Research Areas:	Apoptosis, Bone/Skeletal/Cartilage, Immune System, Neurobiology, Stem Cells & Differentiation, Wound Healing
AA Sequence:	
Human Sonic Hedgehog:	IVIGPGRGFG KRRHPKKLTPLAYKQFIPNV AEKTLGASGR YEGKISRNSE RFKELTPNYPDIIFKDEENTGADRLMTQR CKDKLNALAISVMNQWPGVK LRVTEGWDED GHHSEESLHY EGRALDITTS DRDRSKYGMLARLAVEAGFD WVYYESKAHI HCSVKAENSV AAKSGG
Murine Sonic Hedgehog:	IVIGPGRGFG KRRHPKKLTPLAYKQFIPNV AEKTLGASGR YEGKITRNSE RFKELTPNYPDIIFKDEENTGADRLMTQR CKDKLNALAISVMNQWPGVK LRVTEGWDED GHHSEESLHY EGRAVDITTS DRDRSKYGMLARLAVEAGFD WVYYESKAHI HCSVKAENSV AAKSGG
Estimated pI:	Human Sonic Hedgehog: 9.09 Murine Sonic Hedgehog: 9.09
	Accession #: Human Sonic Hedgehog: Q15465 Murine Sonic Hedgehog: Q62226
NCBI Gene ID:	Human Sonic Hedgehog: 6469 Murine Sonic Hedgehog: 20423

Product Name	Catalog Number	MW	AA
Recombinant Human Sonic Hedgehog (Shh)	100-45	20.0 kDa	176
Recombinant Murine Sonic Hedgehog (Shh)	315-22	20.0 kDa	176

Sox2

Synonyms:

Sex determining Region Y (SRY)-box 2

Description:

Sox2 belongs to a diverse family of structurally-related transcription factors whose primary structure contains a 79-residue DNA-binding domain, called high mobility group (HMG) box. It plays an essential role in maintaining the pluripotency of embryonic stem cells (ESC) and the determination of cell fate. Microarray analysis showed that Sox2 regulates the expression of multiple genes involved in embryonic development, including FGF-4, YES1 and ZFP206. Sox2 acts as a transcriptional activator after forming a ternary complex with Oct3/4 and a conserved non-coding DNA sequence (CNS1) located approximately 2 kb upstream of the RAX promoter. The introduction of Sox2, Oct4, Myc, and KLF4 into human dermal fibroblasts isolated from a skin biopsy of a healthy research fellow was sufficient to confer a pluripotent state upon the fibroblast genome. The reprogrammed cells thus obtained resemble ESCs in morphology, gene expression, and in their capacity to form teratomas in immune-deficient mice. Sox2 and other transcription factors have been introduced into cells by DNA transfection, viral infection, or microinjection. Protein transduction using TAT fusion proteins represents an alternative methodology for introducing transcription factors and other nuclear proteins into primary, as well as transformed, cells.

Research Areas:

Immune System, Stem Cells & Differentiation

AA Sequence:

Human SOX2:

MYNMMETELK PPGPQQTSGG GGGNSTAAAA GGNQKNSPDR VKRPMNAFMV WSRGQRRKMA QENPKMHNSE
ISKRLGAEWK LLSETEKRPF IDEAKRLRAL HMKEHPDYKY RPRRKTKTLM KKDKYTLPGG LLAPGGNSMA
SGVGVGAGLG AGVNQRMDSY AHMNGWSNGS YSMMQDQLGY PQHPGLNAHG AAQMOPMHRY DVSALQYNMS
TSSQTYMNGS PTYSMSYSQQ GTPGMALGSM GSVVKSEASS SPPVVTSSSH SRAPCQAGDL RDMISMYLPG
AEVPEPAAPS RLHMSQHYQS GPVPGTAING TLPLSHM

Human SOX2-TAT:

MYNMMETELK PPGPQQTSGG GGGNSTAAAA GGNQKNSPDR VKRPMNAFMV WSRGQRRKMA QENPKMHNSE
ISKRLGAEWK LLSETEKRPF IDEAKRLRAL HMKEHPDYKY RPRRKTKTLM KKDKYTLPGG LLAPGGNSMA
SGVGVGAGLG AGVNQRMDSY AHMNGWSNGS YSMMQDQLGY PQHPGLNAHG AAQMOPMHRY DVSALQYNMS
TSSQTYMNGS PTYSMSYSQQ GTPGMALGSM GSVVKSEASS SPPVVTSSSH SRAPCQAGDL RDMISMYLPG
AEVPEPAAPS RLHMSQHYQS GPVPGTAING TLPLSHMGGY GRKKRRQRRR

Estimated pI:

Human SOX2: 9.73

Human SOX2-TAT: 10.09

Accession #: Human SOX2: P48431

Human SOX2-TAT: P48431

NCBI Gene ID:

Human SOX2: 6657

Human SOX2-TAT: 6657

Product Name	Catalog Number	MW	AA
Recombinant Human Sox2	110-03	34.3 kDa	317
Recombinant Human Sox2-TAT	110-03T	36.0 kDa	330

SPARC/Osteonectin

Synonyms:

Secreted Protein Acidic and Rich in Cysteine, BM-40, ON

Description:

SPARC/Osteonectin is a secreted, evolutionarily-conserved, collagen-binding glycoprotein that is involved in a variety of cellular activities. It is highly expressed in tissues undergoing morphogenesis, remodeling and wound repair. SPARC/Osteonectin and its related peptides bind to numerous proteins of the extracellular matrix (ECM), affect ECM protein expression, influence cellular adhesion and migration, and modulate growth factor-induced cell proliferation and angiogenesis. SPARC/Osteonectin consists of three domains: an N-terminal acidic region that binds calcium ions with low affinity, a module containing two EF-hand motifs that bind calcium with high affinity, and a cysteine-rich follistatin-like domain.

Research Areas:

Angiogenesis/Cardiovascular, Bone/Skeletal/Cartilage, Cancer, Immune System, Wound Healing

AA Sequence:

APQQEALPDE TEVVEETVAE VTEVSVGANP VQVEVGEFDD GAEETEEEVV AENPCQNHHC KHGKVCCELDE
NNTPMCVCQD PTSCPAPIGE FEKVCSDNDK TFDSSCHFFA TKCTLEGTKK GHKLHLDYIG PCKYIPPCLD
SELTEFPLRM RDWLKNVLVT LYERDEDNNL LTEKQKLRVK KIHENEKRLE AGDHPVELLA RDFEKNYNMY
IFPVHWQFGQ LDQHPIDGYL SHTELAPLRA PLIPMEHCTT RFFETCDLDN DKYIALDEWA GCFGIKQKDI
DKDLVI

Estimated pI:

4.47

Accession #:

P09486

NCBI Gene ID:

6678

Product Name	Catalog Number	MW	AA
Recombinant Human SPARC/Osteonectin	120-36	32.7 kDa	286

TACI

Synonyms:

Transmembrane Activator and CAML Interactor, TNFRSF13B, CD267

Description:

TACI, a member of the TNF Receptor superfamily, is expressed in the small intestine, spleen, thymus, peripheral blood leukocytes, activated T cells, and resting B cells. TACI can bind to both APRIL and BAFF, stimulate the activation of transcription factors NF-κB and AP-1, and can mediate the calcineurin-dependent activation of NF-AT (nuclear-factor of activated T cells). TACI also plays a key role in the stimulation of B and T cell function. Soluble TACI inhibits APRIL-stimulated proliferation of primary B cells by blocking the binding of APRIL to the membrane-anchored TACI receptor.

Research Areas:

Cancer, Immune System, Inflammation

AA Sequence:

SGLGRSRRGG RSRVDQEERF PQGLWTGVAM RSCPEEQYWD PLLGTCMSCK TICNHQSQRT CAAFCRSLSC
RKEQGKFYDH LLRDCISCAS ICGQHPKQCA YFCENKLRSP VNLPPELRRQ RSGEVENNSD NSGRYQGLEH
RGSEASPALP GLKLSADQV

Estimated pI:

9.91

Accession #:

O14836

NCBI Gene ID:

23495

Product Name	Catalog Number	MW	AA
Recombinant Human TACI	310-17	17.8 kDa	159

TAFA-2

Synonyms:

Chemokine-like protein TAFA-2, FAM19A2

Description:

TAFA proteins are a newly discovered family of proteins, which are distantly related to MIP-1 α , a member of the CC-chemokine family. TAFA mRNAs are highly expressed in specific brain regions. The biological function of TAFA-2 is still unknown.

Research Areas:

Chemotaxis, Immune System, Neurobiology, Wound Healing

AA Sequence:

ANHHKAHHVK TGTCEVVALH RCCNKNKIEE RSQTVKCSCF PGQVAGTTRA APSCVDASIV EQKWWCHMQP
CLEGEECKVL PDRKGWSCSS GNKVKTRVT H

Estimated pI:

9.80

Accession #:

Q8N3H0

NCBI Gene ID:

338811

Product Name	Catalog Number	MW	AA
Recombinant Human TAFA-2	300-63	11.2 kDa	101

TARC (CCL17)

Synonyms:	Thymus and Activation-Regulated Chemokine, ABCD-2		
Description:	TARC, a CC chemokine, is predominantly produced by dendritic cells in the thymus, and signals through the CCR4 receptor. TARC is chemotactic towards T cells.		
Research Areas:	Chemotaxis, Immune System, Wound Healing		
AA Sequence:	ARGTNVGREC CLEYFKGAIP LRKLKTWYQT SEDCSRDAIV FVTVQGRAIC SDPNNKRVKN AVKYLQSLER S		
Estimated pI:	10.00	Accession #:	Q92583
NCBI Gene ID:	6361		

Product Name	Catalog Number	MW	AA
Recombinant Human TARC (CCL17)	300-30	8.0 kDa	71

TECK (CCL25)

Synonyms:

Thymus Expressed Chemokine

Description:

TECK is a CC chemokine, specifically expressed by thymic stromal cells, and signals through the CCR9 receptor. TECK is chemotactic towards activated macrophages, thymocytes and dendritic cells.

Research Areas:

Chemotaxis, Immune System, Wound Healing

AA Sequence:

QGVFEDCCLA YHYPIGWAVL RRAWTYRIQE VSGSCNLPAA IFYLPKRHRK VCGNPKSREV QRAMKLLDAR
NKVFAKLHHN MQTFQAGPHA VKKLSSGNSK LSSSKFSNPI SSSKRNVSLL ISANSGL

Estimated pI:

10.94

Accession #: O15444

NCBI Gene ID:

6370

Product Name	Catalog Number	MW	AA
Recombinant Human TECK (CCL25)	300-45	14.2 kDa	127
Animal-Free Recombinant Human TECK (CCL25)	AF-300-45	14.2 kDa	127

TFF-1, -2, -3

Synonyms:	TFF-1: Trefoil Factor 1, pS2 protein, HP1.A, Breast Cancer Estrogen-Inducible protein (BCEI), PNR2; TFF-2: Trefoil Factor 2, Spasmolytic Polypeptide (SP), Spasmolysin; TFF-3: Trefoil Factor 3, Intestinal Trefoil Factor (ITF), TFI		
Description:	The Trefoil Factor peptides (TFF1, TFF2 and TFF3) are secreted in the gastrointestinal tract, and appear to play an important role in intestinal mucosal defense and repair. TFF-3 is expressed by goblet cells and in the uterus, and has also been shown to be expressed in certain cancers, including colorectal, hepatocellular, and in biliary tumors. TFF3 may be useful as a molecular marker for certain types of cancer, but its role, if any, in tumorigenesis is unknown. TFF3 also promotes airway epithelial cell migration and differentiation.		
Research Areas:	Cancer, Stem Cells & Differentiation, Wound Healing		
AA Sequence:			
Human TFF-1:	EAQTETCTVA PRERQNCGFP GVTPSQCANK GCCFDDTVRG VPWCFYPNTI DVPPEEECEF		
Murine TFF-1:	QAQAQAQAQE ETCIMAPRER INCGFPGVTA QQCTERGCCF DDSVRGFPPWC FHPMAIENTQ EEECPF		
Human TFF-2:	AEKPSPCQCS RLSPHNRTNC GFGITSDQC FDNGCCFDSS VTGVPWCFHP LPKQESDQCV MEVSDRRNCG YPGISPEECA SRKCCFSNFI FEVPWCFFPK SVEDCHY		
Murine TFF-2:	EKPSPCRCSR LTPHNRRKNCG FPGITSEQCF DLGCCFDSSV AGVPWCFHPL PNQESEQCVM EVSARKNCGY PGISPEDCAS RNCCFSNLIF EVPWCFFPQS VEDCHY		
Human TFF-3:	EEYVGLSANQ CAVPAKDRVD CGYPHVTPEK CNNRGCCFDS RIPGVPWCFK PLQEAECTF		
Estimated pI:	Human TFF-1: 3.97 Murine TFF-1: 4.58 Human TFF-2: 5.06 Murine TFF-2: 5.43 Human TFF-3: 4.94	Accession #:	Human TFF-1: P04155 Murine TFF-1: Q08423 Human TFF-2: Q03403 Murine TFF-2: Q03404 Human TFF-3: Q07654
NCBI Gene ID:	Human TFF-1: 7031 Murine TFF-1: 21784 Human TFF-2: 7032 Murine TFF-2: 21785 Human TFF-3: 7033		

Product Name	Catalog Number	MW	AA
Recombinant Human TFF-1	300-60	6.7 kDa	60
Recombinant Murine TFF-1	315-31	7.4 kDa	66
Recombinant Human TFF-2	300-59	12.0 kDa	107
Recombinant Murine TFF-2	315-30	11.9 kDa	106
Recombinant Human TFF-3	300-61	13.2 kDa	118

TGF-α

Synonyms:

Transforming Growth Factor-α, Sarcoma growth factor, TGF-type I, ETGF

Description:

TGF-α is an EGF-related polypeptide growth factor that signals through the EGF receptor, and stimulates the proliferation of a wide range of epidermal and epithelial cells. It is produced by monocytes, keratinocytes, and various tumor cells. TGF-α induces anchorage-independent transformation in cultured cells. Human, murine and rat TGF-α are cross-species reactive.

Research Areas:

Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Wound Healing

AA Sequence:

VVSHFNDCPD SHTQFCFHGT CRFLVQEDKP ACVCHSGYVG ARCEHADLLA

Estimated pI:

5.85

Accession #:

P01135

NCBI Gene ID:

7039

Product Name	Catalog Number	MW	AA
Recombinant Human TGF-α	100-16A	5.5 kDa	50
Animal-Free Recombinant Human TGF-α	AF-100-16A	5.5 kDa	50

TGF-β Superfamily

Synonyms: **TGF-β1:** Transforming Growth Factor-β1, Differentiation inhibiting factor, Cartilage-inducing factor; **TGF-β2:** Transforming Growth Factor-β2, Glioblastoma-derived T cell suppressor factor, BSC-1, Cetermin, Polygerin; **TGF-β3:** Transforming Growth Factor-β3

Description: The three mammalian isoforms of TGF-β, TGF-β1, β2, and β3, signal through the same receptor and elicit similar biological responses. They are multifunctional cytokines that regulate cell proliferation, growth, differentiation and motility, as well as synthesis and deposition of the extracellular matrix. They are involved in various physiological processes, including embryogenesis, tissue remodeling and wound healing. They are secreted predominantly as latent complexes, which are stored at the cell surface and in the extracellular matrix. The release of the biologically active TGF-β isoform from a latent complex involves proteolytic processing of the complex and /or induction of conformational changes by proteins such as thrombospondin-1. TGF-β1 is the most abundant isoform secreted by almost every cell type. It was originally identified for its ability to induce phenotypic transformation of fibroblasts, and recently it has been implicated in the formation of skin tumors.

Research Areas: Allergy, Angiogenesis/Cardiovascular, Apoptosis, Bone/Skeletal/Cartilage, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Wound Healing

AA Sequence (monomer):

Human TGF-β₁ (HEK298 derived): ALDTNYCFSS TEKNCCVRQL YIDFRKDLGW KWIHEPKGYH ANFCLGPCPY IWSLDTQYSK VLALYNQHNP
GASAAP**C**CVP QALEPLIVY YVGRKPKVEQ LSNMIVRSCK CS
**Cysteine-77 (Pink) is used for an inter-chain disulfide bridging*

Human TGF-β₁ (CHO Cell derived): ALDTNYCFSS TEKNCCVRQL YIDFRKDLGW KWIHEPKGYH ANFCLGPCPY IWSLDTQYSK VLALYNQHNP
GASAAP**C**CVP QALEPLIVY YVGRKPKVEQ LSNMIVRSCK CS
**Cysteine-77 (Pink) is used for an inter-chain disulfide bridging*

Human TGF-β₂ (Insect derived): ALDAAYCFRN VQDNCCLRPL YIDFKRDLGW KWIHEPKGYN ANFCAGACPY LWSSDTQHRS VLSLYNTINP
EASASP**C**CVS QDLEPLTILY YIGKTPKIEQ LSNMIVKSCK CS
**Cysteine-77 (Pink) is used for an inter-chain disulfide bridging*

Human TGF-β₂ (HEK293 derived): ALDAAYCFRN VQDNCCLRPL YIDFKRDLGW KWIHEPKGYN ANFCAGACPY LWSSDTQHRS VLSLYNTINP
EASASP**C**CVS QDLEPLTILY YIGKTPKIEQ LSNMIVKSCK CS
**Cysteine-77 (Pink) is used for an inter-chain disulfide bridging*

Human TGF-β₃ (E.coli derived): ALDTNYCFRN LEENCCVRPL YIDFRQDLGW KKWHEPKGYY ANFCSGPCPY LRSADTTHTS VLGLYNTLNP
EASASP**C**CVP QDLEPLTILY YVGRTPKVEQ LSNMVVKSCCK CS
**Cysteine-77 (Pink) is used for an inter-chain disulfide bridging*

Estimated pI:	Human TGF-β ₁ (HEK298 derived):	9.39	Accession #:	Human TGF-β ₁ (HEK298 derived):	P01137
	Human TGF-β ₁ (CHO Cell derived):	9.39		Human TGF-β ₁ (CHO Cell derived):	P01137
	Human TGF-β ₂ (Insect derived):	8.58		Human TGF-β ₂ (Insect derived):	P61812
	Human TGF-β ₂ (HEK293 derived):	8.58		Human TGF-β ₂ (HEK293 derived):	P61812
	Human TGF-β ₃ (E.coli derived):	6.09		Human TGF-β ₃ (E.coli derived):	P10600
NCBI Gene ID:	Human TGF-β ₁ (HEK298 derived):	7040		Human TGF-β ₂ (HEK293 derived):	7042
	Human TGF-β ₁ (CHO Cell derived):	7040		Human TGF-β ₃ (E.coli derived):	7043
	Human TGF-β ₂ (Insect derived):	7042			

Product Name	Catalog Number	MW	AA
Recombinant Human TGF-β ₁ (HEK298 derived)	100-21	25.0 kDa	224
Recombinant Human TGF-β ₁ (CHO Cell derived)	100-21C	25.0 kDa	224
Animal-Free Recombinant Human TGF-β ₁ (CHO Cell derived)	AF-100-21C	25.0 kDa	224
Recombinant Human TGF-β ₂ (Insect derived)	100-35	25.0 kDa	224
Recombinant Human TGF-β ₂ (HEK293 derived)	100-35B	25.0 kDa	224
Recombinant Human TGF-β ₃ (E.coli derived)	100-36E	25.0 kDa	224
Animal-Free Recombinant Human TGF-β ₃ (E.coli derived)	AF-100-36E	25.0 kDa	224

Thrombomodulin

Synonyms:	CD141, BDCA-3, THBD, TM		
Description:	Thrombomodulin (TM, CD141, THBD) is an endothelial cell-expressed, transmembrane glycoprotein that can form a complex with the coagulation factor, thrombin. The thrombomodulin/thrombin complex converts protein C to its activated form, protein Ca, which in turn proteolytically cleaves and deactivates factor Va and factor VIIIa, two essential components of the coagulation mechanism. This inactivation reduces the generation of additional thrombin, and thereby effectively prevents continued coagulation. Reduced levels of thrombomodulin can correlate with the pathogenesis of certain cardiovascular diseases, such as atherosclerosis and thrombosis. However, the serum levels of the truncated circulating form of thrombomodulin are typically elevated during inflammation and in the presence of various inflammatory-related diseases. The thrombomodulin protein contains 575 amino acids, including an 18 a.a. signal sequence, a 497 a.a. extracellular domain, a 24 a.a. transmembrane sequence, and a 36 a.a. cytoplasmic region.		
Research Areas:	Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation		
AA Sequence:	APAEPQPGGS QCVEHDCFAL YPGPATFLNA SQICDGLRGH LMTVRSSVAA DVISLLLNGD GGVGRRRLWI GLQLPPGCGD PKRLGPLRGF QWVTGDNNTS YSRWARLDLN GAPLCGPLCV AVSAAEATVP SEPIWEEQQC EVKADGFLCE FHFPATCRPL AVEPGAAAAA VSITYGTFFA ARGADFQALP VGSSAAVAPL GLQLMCTAPP GAVQGHWARE APGAWDCSVE NGGCEHACNA IPGAPRCQCP AGAALQADGR SCTASATQSC NDLCEHFCVP NPDQPGSYSC MCETGYRLAA DQHRCEDVDD CILEPSPCPQ RCVNTQGGFE CHCYPNYDLV DGECVEPVDP CFRANCEYQC QPLNQTSYLC VCAEGFAPIP HEPHRCQMFC NQTACPADC PNTQASCECP EGYILDDGFI CTDIDECENG GFCSGVCHNL PGTFEICICP DSALARHIGT DCDSGKVDGG DSGSGEPPPS PTPGSTLTTP A		
Estimated pI:	4.21	Accession #: P07204	
NCBI Gene ID:	7056		

Product Name	Catalog Number	MW	AA
Recombinant Human Thrombomodulin	100-58	51.4 kDa	491

Thymosin-β4

Synonyms:	Tβ-4, Hematopoietic system regulatory peptide, Seraspenide, TMSB4X, TB4X, TMSB4
Description:	Thymosin-β4 is a small, actin-sequestering protein belonging to the thymosin-β family that is found at high concentrations within the spleen, thymus, and peritoneal macrophages, where it is most notably responsible for the organization of cytoskeletal structure. In mammalian tissues, this protein acts as a modulator for the polymerization/depolymerization of actin through the formation of a 1:1 complex with the monomer G (globular)-actin, and inhibits actin's polymerization to form F (filamentous) actin, which together with other proteins binds microfilaments to construct the cytoskeleton. Commonly found at significant quantities within the brain, lungs, liver, kidneys, testes, and heart, Thymosin-β4 has also been shown to be synthesized by cells unrelated to the reticuloendothelial system, such as myoblasts and fibroblasts, and expressed at irregular levels by several hemopoietic cell lines, malignant lymphoid cells and myeloma cells. In addition to regulating actin polymerization, research has also found Thymosin-β4 to stimulate the secretion of hypothalamic luteinizing hormone-releasing hormone and luteinizing hormone, inhibit the migration of peritoneal macrophages, induce phenotypic changes in T cell lines during early host defense mechanisms, and inhibit the progression of hematopoietic pluripotent stem cells into the S-phase.
Research Areas:	Apoptosis, Cancer, Stem Cells & Differentiation
AA Sequence:	RMSDKPDMAE IEKFDKSKLK KTETQEKNP L PSKETIEQEK QAGES
Estimated pI:	5.17 Accession #: P62328
NCBI Gene ID:	7114

Product Name	Catalog Number	MW	AA
Recombinant Human/Murine/Rat Thymosin-β4	140-14	5.2 kDa	45

TIGAR

Synonyms:

TP53-Induced Glycolysis and Apoptosis Regulator (TIGAR)

Description:

TIGAR is a p53-inducible enzyme that catalyzes the hydrolysis of fructose-2-6 bisphosphate (F-2-6-BP) to fructose-6-phosphate and inorganic phosphate. F-2-6-BP is a powerful activator of 6-phosphofructose-1 kinase, the rate limiting enzyme of glycolysis. By lowering the intracellular level of F-2-6-BP, TIGAR expression leads to increased glucose processing via the pentose phosphate pathway, the major cellular source for NADPH.

Research Areas:

Apoptosis, Cancer, Immune System, Stem Cells & Differentiation

AA Sequence:

Human TIGAR:

ARFALTVVRHGETRFNKEKI IQQGQVDEPL SETGFKQAAA AGIFLNNVKF THAFSSDLMR TKQTMHGILE
RSKFCKDMTV KYDSRLRERK YGVVEGKALS ELRAMAKAAR EECPVFTPPG GETLDQVKMR GIDFFEFLCQ
LILKEADQKE QFSQGSPSNC LETSLAEIFP LGKNHSSKVN SDSGIPGLAA SVLVVSHGAY MRSFLFDYFLT
DLKCSLPATL SRSELM SVTP NTGMSLFIIN FEEGREVKPT VQCICMNLQD HLNGLTETR

Human TIGAR-TAT:

ARFALTVVRHGETRFNKEKI IQQGQVDEPL SETGFKQAAA AGIFLNNVKF THAFSSDLMR TKQTMHGILE
RSKFCKDMTV KYDSRLRERK YGVVEGKALS ELRAMAKAAR EECPVFTPPG GETLDQVKMR GIDFFEFLCQ
LILKEADQKE QFSQGSPSNC LETSLAEIFP LGKNHSSKVN SDSGIPGLAA SVLVVSHGAY MRSFLFDYFLT
DLKCSLPATL SRSELM SVTP NTGMSLFIIN FEEGREVKPT VQCICMNLQD HLNGLTETR GGYGRKKRRQ
RRR

Estimated pI:

Human TIGAR: 8.16

Human TIGAR-TAT: 9.53

Accession #: Human TIGAR: Q9NQ88

Human TIGAR-TAT: Q9NQ88

NCBI Gene ID:

Human TIGAR: 57103

Human TIGAR-TAT: 57103

Product Name	Catalog Number	MW	AA
Recombinant Human TIGAR	150-14	29.9 kDa	269
Recombinant Human TIGAR-TAT	150-14T	31.6 kDa	283

TIMP-1

Synonyms:

Tissue Inhibitor of Metalloproteinases 1, Fibroblast collagenase inhibitor, Erythroid-potentiating activity

Description:

TIMP-1 is an extracellular inhibitor of MMPs, including MMP-1, -2, -3, -7, -8, -9, -10, -11, -12, -13, and -16. It belongs to the I35 (TIMP) family of irreversible protease inhibitors that function as key modulators of extracellular matrix degradation during tissue development and remodeling. TIMP-1 can also act through an MMP-independent mechanism to promote erythropoiesis by stimulating proliferation and differentiation of erythroid progenitors.

Research Areas:

Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation

AA Sequence:

CTCVPPHPQT AFCNSDLVIR AKFVGTPENV QTTLYQRYEI KMTKMYKGFQ ALGDAADIRF VYTPAMESVC
GYFHRSHNRS EEFLIAGKLQ DGLLHITTCF FVAPWNSLSL AQRRTGFTKTY TVGCEECTVF PCLSIPCKLQ
SGTHCLWTDQ LLQGSEKGFQ SRHLACLPRE PGLCTWQSLR SQIA

Estimated pI:

9.36

Accession #:

P01033

NCBI Gene ID:

7076

Product Name	Catalog Number	MW	AA
Recombinant Human TIMP-1	410-01	20.6 kDa	184

TIMP-2

Synonyms:

Tissue Inhibitor of Metalloproteinases 2, CSC-21K

Description:

TIMP-2 is an extracellular inhibitor of MMPs, including MMP-1, -2, -3, -7, -8, -9, -10, -12, -13, -14, -15, -16 and -19. It belongs to the I35 (TIMP) family of irreversible protease inhibitors that function as key modulators of extra-cellular matrix degradation during tissue development and remodeling. TIMP-2 can also act through a MMP-inde-pendent mechanism inhibiting endothelial cell proliferation *in vitro* and demonstrates anti-angiogenic activities *in vivo*.

Research Areas:

Angiogenesis/Cardiovascular, Cancer, Immune System, Stem Cells & Differentiation

AA Sequence:

CSCSPVHPQQ AFCNADVIR AKAVSEKEVD SGNDIYGNPI KRIQYEIKQI KMFKGPEKDI EFIYTAPSSA
VCGVSLDVGG KKEYLIAGKA EGDGKMHITL CDFIVPWDTL STTQKKSLNH RYQMGCECKI TRCPMIPCYI
SSPDECLWMD WVTEKNINGH QAKFFACIKR SDGSCAWYRG AAPPKQEFLL IEDP

Estimated pI:

6.51

Accession #:

P16035

NCBI Gene ID:

7077

Product Name	Catalog Number	MW	AA
Recombinant Human TIMP-2	410-02	21.8 kDa	194

Tissue Factor

Synonyms:	TF, TF1, Coagulation factor III, factor III, F3, Thromboplastin, CD142		
Description:	Tissue factor is a transmembrane glycoprotein of the cytokine receptor superfamily that acts as a receptor for coagulation factor VII (fVII) to trigger initiation of the coagulation cascade in response to vascular injury. Expression of tissue factor occurs constitutively within most extravascular and perivascular cells and at high levels within critical organs and tissue. Tissue factor is not normally expressed freely on the surface of circulating blood cells due to its pro-coagulant effect, but is instead stored on the surface of mononuclear and endothelial cells in microparticles that can shed into circulation in response to vascular injury, pro-inflammatory cytokines, or microbial ligands. Tissue factor can also be shed into circulation by cancer cells where its expression in a number of cancer types has been linked to tumor progression, metastatic potential, thrombosis, and angiogenesis. Expression of tissue factor has been shown to be inducible by select cytokines in a number of cell types, including IL-1 β and TNF- α in vascular endothelial cells and macrophages, and TNF- α , IL-6, and FGF-Basic in monocytes, among others.		
Research Areas:	AIDS/HIV, Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation, Proliferation, Wound Healing		
AA Sequence (monomer):	SGTTNTVAAY NLTWKSTNFK TILEWEPKPV NQVYTVQIST KSGDWKSKCF YTTDTECDLT DEIVKDVKQT YLARVFSYPA GNVESTGSAG EPLYENSPEF TPYLETNLGQ PTIQSFEQVG TKVNVTVED E RTLVRNRNNTF LSLRDVF GKD LIYTLYYWKS SSSGKKTAKT NTNEFLIDVD KGENYCF SVQ AVIPSRTVNR KSTDSPHHHH HHHH		
Estimated pI:	6.50	Accession #: P13726	
NCBI Gene ID:	2152		

Product Name	Catalog Number	MW	AA
Recombinant Human Tissue Factor	150-19	48.8 kDa	428

TL-1A

Synonyms:

TNFSF15, VEGI

Description:

TL-1A belongs to the TNF superfamily of ligands. It is expressed predominantly in endothelial cells, and to a lesser extent in the placenta, lung, kidney, skeletal muscle, pancreas, small intestine and colon. TL-1A inhibits endothelial cell proliferation and angiogenesis, and has been shown to induce NF-κB activation, caspase activity, and apoptosis in responding cell lines. TL-1A interacts with TNFRSF25/DR3 receptor, but can also bind to a decoy receptor TNFRSF21/DR6.

Research Areas:

Angiogenesis/Cardiovascular, Apoptosis, Immune System

AA Sequence:

QLRAQGEASV QFQALKGQEF APSHQQVYAP LRADGDKPRA HLTVVRQTPT QHFKNQFPAL HWEHELGLAF
TKNRMNYTNK FLLIPESGDY FIYSQVTFRG MTSECSEIRQ AGRPNKPDSI TVVITKVTDS YPEPTQLLMG
TKSVCEVGSN WFQPIYLGAM FSLQEGDKLM VNVSDISLVD YTKEDKTFFG AFLL

Estimated pI:

6.61

Accession #:

O95150

NCBI Gene ID:

9966

Product Name	Catalog Number	MW	AA
Recombinant Human TL-1A	310-23	22 kDa	194

TLR-3

Synonyms:

Toll-Like Receptor 3, CD283 antigen

Description:

TLR-3 is a single-pass type I receptor that binds to and signals the presence of microbial pathogens and double stranded RNA (dsRNA) viruses. Signaling through TLR-3 can promote the NF-κB pathway to initiate innate and adaptive immune responses to bacterial and viral infections, as well as the p53 pathway to trigger apoptosis in cells infected with dsRNA viruses. TLR-3 belongs to a family of structurally-related toll-like receptors (TLRs) containing an N-terminal domain rich in leucine repeats, and a C-terminal intracellular Toll/interleukin (IL)-1 (TIL) domain. TLR-3 is expressed primarily in dendritic cells of the placenta and pancreas where it can reside on both sides of the plasma membrane, and in the endosomal compartment of the cells.

Research Areas:

Apoptosis, Immune System, Inflammation

AA Sequence (monomer):

STTKCTVSHE VADCSHLKLT QVPDDLPTNI TVLNLTHNQL RRLPAANFTR YSQLTSLDVG FNTISKLEPE
LCQKLPMLKV LNLQHNELSQ LSDKTFAFCT NLTELHLMSN SIQIKNNPF VKQKNLITLD LSHNGLSSTK
LGTQVQLENL QELLSNCKI QALKSEELDI FANSSKKLE LSSNQIKEFS PGCFAIGRL FGLFLNNVQL
GPSLTEKLCL ELANTSIRNL SLSNSQLSTT SNTTFLGLKW TNLTMLDLSY NNLNVVGND FAWLPQLEYF
FLEYNNIQHL FSHSLHGLFN VRYLNLKRSF TKQSIASL PKIDDFSQW LKCLEHLNME DNDIPGKSN
MFTGLINLKY LSLSNSFTSL RTLTNETFVS LAHSPLHILN LTKNKISKIE SDAFSWLGH EVDLGLNEI
GQELTGQEW GLENIFEIYL SYNKYLQLTR NSFALVPSLQ RLMLRRVALK NVDSSPSPFQ PLRNLTILDL
SNNNIANIND DMLEGLEKLE ILDLQHNNLA RLWKHANPGG PIYFLKGLSH LHILNLESNG FDEIPVEVFK
DLFELKIIDL GLNNLNTLPA SVFNNQVSLK SLNLQKNLIT SVEKKVFGPA FRNLTELD MR FNPFDCTCES
IAWFVNWINE THTNIPELSS HYLCNTPPHY HGFPVRLFDT SSCKDSAPFE L

Estimated pI:

6.28

Accession #:

O15455

NCBI Gene ID:

7098

Product Name	Catalog Number	MW	AA
Recombinant Human TLR-3	160-01	77.4 kDa	681

TLR-4

Synonyms:	Toll-like receptor 4, TOLL, CD284, ARMD10		
Description:	Characterized by N-terminal domains rich in leucine repeats and C-terminal intracellular Toll/interleukin (IL)-1 (TIL) domains, the structurally-related members of the Toll-like Receptor (TLR) family are abundantly expressed, transmembrane signaling receptors that play integral roles in the induction of innate and adaptive immunity. As members of the larger family of pattern recognition receptors, TLRs recognize and respond to pathogen-associated molecular patterns (PAMPs) and endogenous damage-associated molecular patterns (DAMPs) by initiating activation of NF-κB and the release of inflammatory mediators. Constitutively expressed in cells of the immune system, TLR-4 is secreted at significantly amplified levels in response to high concentrations of LPS, the major cell wall component of gram-negative bacteria that acts as the key ligand for TLR-4 inflammatory response. TLR-4 mounts a defense against infection through an intricate process involving interaction with co-stimulatory molecules, such as myeloid differentiation factor 88 (MyD88), NF-κB, LPS-Binding Protein (LBP), CD14, and MD-2, and the instigation of intracellular signaling cascade that prompts the NF-κB, Wnt/β-catenin, and mitogen-activated protein kinase (MAPK) pathways to secrete proinflammatory cytokines and chemokines. Myeloid differentiation protein-2 (MD-2), also referred to as LY96, is essential to TLR-4-mediated response to LPS due to its binding of both the extracellular domain of TLR-4, which serves to localize TLR-4 on the cell surface, and LPS to form the TLR-4/MD-2/LPS complex, which can be used for the in vitro removal of endotoxin from biological samples. The activation of TLR-4/MD-2 begins with the detection of LPS by circulating LBP, which in turn facilitates an association between LPS and CD14 for the formation of a CD14-LPS complex that transports and presents LPS to the TLR-4/MD-2 signaling complex, and culminates in the activation of downstream signaling events. Inflammatory response can also be triggered by the formation of a heterodimeric complex between TLR-6 and TLR-4, the internalization of which results in NF-κB-dependent secretion of CXCL1, as well as the production of proinflammatory cytokines, such as IL-1β, and the production of inflammatory regulating chemokines, such as CXCL2, CCL5 and CCL9. Considering TLR-4's connections to immunity, inflammatory response, proliferation, apoptosis and angiogenesis, it is no surprise that irregular expression of TLR-4 has been linked to various malignant cell types, a number of autoimmune conditions genetically linked to psoriasis, and a number of other diseases.		
Research Areas:	Allergy, Angiogenesis/Cardiovascular, Apoptosis, Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Proliferation		
AA Sequence:	ESWEPCVEVV PNITYQCMEI NFYKIPDNLP FSTKNLDLSF NPLRHLGSYS FFSFPQLQVL DLSRCEIQT EDGAYQSLSH LSTLILTGNP IQSLALGAFS GLSSLQKLVA VETNLASLEN FPIGHLKTLK ELNVAHNLIQ SFKLPEYFSN LTNLEHLDLS SNKIQSIYCT DLRVLHQMPL LNLSLDLSLN PMNFIQPGAF KEIRLHKLT RNNFDSLNV KTCIQGLAGL EVHRLVLGEF RNEGNLEKFD KSALEGLCNL TIEEFRLAYL DYYLDDIIDL FNCLTNVSSF SLVSVTIERV KDFSYNFGWQ HLELVNCKFG QFPTLKLKSL KRLTFTSNKG GNAFSEVDLP SLEFLDLSRN GLSFKGCCSQ SDFGTTSKY LDLSFNGVIT MSSNFLGLEQ LEHLDFQHSN LKQMFSEFSV LSLRNLIYLD ISHTHTRVAF NGIFNGLSSL EVLKMAGNSF QENFLPDIFT ELRNLTFDL SQQCLEQLSP TAFNSLSSLQ VLNMSHNNFF SLDTFPYKCL NSLQVLDYSL NHIMTSKKQE LQHFPSLAF LNLQNDFA TCEHQSFLQW IKDQRQLLVE VERMECATPS DKQGMVLSL NITCQMNKT		
Estimated pI:	5.59	Accession #: O00206	
NCBI Gene ID:	7099		

Product Name	Catalog Number	MW	AA
Recombinant Human TLR-4	160-06	69.3 kDa	609

TMIGD2/CD28H

Synonyms:	Transmembrane and immunoglobulin domain-containing protein 2, CD28 homolog, Immunoglobulin and pro-line-rich receptor 1 (IGPR-1)		
Description:	Transmembrane and immunoglobulin domain-containing protein 2 (TMIGD2), or CD28H, is a type I costimulatory transmembrane receptor of the CD28 receptor family that functions as both an adhesion molecule and regulator of T cell function. TMIGD2 is constitutively expressed on naïve T cells and NK cells, although expression is rapidly lost upon stimulation. Interaction with its ligand, B7-H7/HLA2, co-stimulates T cell proliferation and differentiation, as well as increases cytokine production through the Akt pathway. TMIGD2 is also widely expressed on cells of epithelial and endothelial origin where it regulates cell morphology and cell-cell interaction, reduces cell migration and promotes angiogenesis. The cytoplasmic tail of TMIGD2 interacts with SH3-containing signaling molecules, such as SPIN90, CACNB2, BPAG1 and MIA, to modulate angiogenesis.		
Research Areas:	Angiogenesis/Cardiovascular, Immune System		
AA Sequence:	LSVQQGPNLL QVRQGSQATL VCQVDQATAW ERLRVKWKTD GAILCQPYIT NGSLSLGVCG PQGRLSWQAP SHLTLQLDPV SLNHSGAYVC WAAVEIPELE EAEGNITRLF VDPDDPTQNR NRIASFPGGG PKSCDKTHTC PPCPAPELLG GPSVFLFPPK PKDTLMISRT PEVTCVVVDV SHEDPEVKFN WYVDGVEVHN AKTKPREEQY NSTYRVVSVL TVLHQDWLNG KEYKCKVSNK ALPAPIEKTI SKAKGQPREP QVYTLPPSRD ELTKNQVSLT CLVKGFYPSD IAVEWESNGQ PENNYKTTPP VLDSDGSFFL YSKLTVDKSR WQQGNVFCSS VMHEALHNHY TQKSLSLSPG K		
Estimated pI:	6.79	Accession #: Q96BF3	
NCBI Gene ID:	126259		

Product Name	Catalog Number	MW	AA
Recombinant Human TMIGD2/CD28H	310-42	40.1 kDa	361

TNF-α

Synonyms:	Tumor Necrosis Factor-α, TNFSF2, Cachectin, Differentiation-inducing factor (DIF), Necrosin, Cytotoxin, TNS-F1A		
Description:	TNF-α is a pleiotropic pro-inflammatory cytokine secreted by various cells, including adipocytes, activated monocytes, macrophages, B cells, T cells and fibroblasts. It belongs to the TNF family of ligands, and signals through two receptors, TNFR1 and TNFR2. TNF-α is cytotoxic to a wide variety of tumor cells, and is an essential factor in mediating the immune response against bacterial infections. TNF-α also plays a role in the induction of septic shock, autoimmune diseases, rheumatoid arthritis, inflammation, and diabetes. Human and murine TNF-α demonstrate significant cross-species reactivity. TNF-α exists in two forms; a type II transmembrane protein, and a mature soluble protein. The TNF-α transmembrane protein is proteolytically cleaved to yield a soluble, biologically active, 17 kDa TNF-α, which forms a non-covalently linked homotrimer in solution. The soluble TNF-α polypeptide corresponds to the C-terminal extracellular domain of the full length transmembrane protein, and contains 157 amino acid residues.		
Research Areas:	AIDS/HIV, Allergy, Angiogenesis/Cardiovascular, Apoptosis, Cancer, Diabetes/Weight Regulation, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation, Transplantation		
AA Sequence:			
Human TNF-α:	VRSSSRTPSD KPVAVHVANP QAEGQLQWLN RRANALLANG VELRDNQLVV PSEGLYLIYS QVLFGQGQCP STHVLLTHTI SRIAVSYQTK VNLLSAIKSP CQRETPEGAE AKPWYEPIYL GGVFQLEKGD RLSAEINRPD YLDFAESGQV YFGIIAL		
Murine TNF-α:	MLRSSSQNSS DKPVAVHVAN HQVEEQLEWL SQRANALLAN GMDLKDNLV VPADGLYLVY SQVLFGQGQC PDYVLLTHTV SRFAISYQEK VNLLSAVKSP CPKDTPEGAE LKPWYEPIYL GGVFQLEKGD QLSAEVNLPK YLDFAESGQV YFGVIAL		
Rat TNF-α:	MLRSSSQNSS DKPVAVHVAN HQAEEQLEWL SQRANALLAN GMDLKDNLV VPADGLYLIY SQVLFGQGQC PDYVLLTHTV SRFAISYQEK VSLLSAIKSP CPKDTPEGAE LKPWYEPMYL GGVFQLEKGD LLSAEVNLPK YLDITESGQV YFGVIAL		
Estimated pI:	Human TNF-α: 7.15 Murine TNF-α: 4.78 Rat TNF-α: 4.78	Accession #:	Human TNF-α: P01375 Murine TNF-α: P06804 Rat TNF-α: P16599
NCBI Gene ID:	Human TNF-α: 7124 Murine TNF-α: 21926 Rat TNF-α: 24835		

Product Name	Catalog Number	MW	AA
Recombinant Human TNF-α	300-01A	17.4 kDa	157
Animal-Free Recombinant Human TNF-α	AF-300-01A	17.4 kDa	157
Recombinant Murine TNF-α	315-01A	17.3 kDa	157
Animal-Free Recombinant Murine TNF-α	AF-315-01A	17.3 kDa	157
Recombinant Rat TNF-α	400-14	17.3 kDa	157

TNF-β

Synonyms:	Tumor Necrosis Factor-β, TNFSF1B, Lymphotoxin-alpha (LT-α)		
Description:	TNF-β is a potent mediator of inflammatory and immune responses. It belongs to the TNF family of ligands, and signals through TNFR1 and TNFR2. TNF-β is produced by activated T and B lymphocytes, and has similar activities to TNF-α. Like TNF-α, TNF-β is involved in the regulation of various biological processes, including cell proliferation, differentiation, apoptosis, lipid metabolism, coagulation, and neurotransmission. TNF-β is secreted as a soluble polypeptide, but can form heterotrimers with lymphotoxin-β, which effectively anchors the TNF-β to the cell surface. TNF-β is cytotoxic to a wide range of tumor cells.		
Research Areas:	Allergy, Angiogenesis/Cardiovascular, Apoptosis, Immune System, Inflammation, Lipid Metabolism, Neurobiology, Stem Cells & Differentiation		
AA Sequence:	MLPGVGLTPS AAQTARQHPK MHLAHSTLKP AAHLIGDPSK QNSLLWRANT DRAFLQDGFS LSNNSLLVPT SGIYFVYSQV VFSGKAYSPK ATSSPLYLAH EVQLFSSQYP FHVPLLSSQK MVYPGLQEPW LHSMYHGAAF QLTQGDQLST HTDGIPHLVL SPSTVFFGAF AL		
Estimated pI:	8.91	Accession #: P01374	
NCBI Gene ID:	4049		

Product Name	Catalog Number	MW	AA
Recombinant Human TNF-β	300-01B	18.6 kDa	172

sTNF Receptor Type I

Synonyms:soluble Tumor Necrosis Factor Type I, TNFRSF1A, TNFAR, p60, p55, CD120a, TNFR1

Description:TNFR1 belongs to the TNFR superfamily of transmembrane proteins, and is expressed in most cell types. Binding of either TNF- α or TNF- β to TNFR1 initiates a signal transduction pathway that results in the activation of the transduction factor NF- κ B, whose target genes are involved in the regulation of inflammatory responses, and, in certain cells induce apoptosis. Soluble TNF Receptor I (sTNFR1) is capable of inhibiting TNF- α and TNF- β activities by acting as a decoy receptor that serves as a sink for the TNF ligands. The human TNFR1 gene encodes for a 455 amino acid type I transmembrane protein, which contains a 21 amino acid signal sequence, a 190 amino acid extracellular domain, a 23 amino acid transmembrane domain, and a 221 amino acid cytoplasmic domain.

Research Areas:Apoptosis, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation

AA Sequence:MDSVCPQGKY IHPQNNSICC TKCHKGTYLY NDCPGPGQDT DCRECESGSF TASENHLRHC LSCSKCRKEM
GQVEISSCTV DRDTVCGCRK NQYRHYWSEN LFQCFNCSLC LNGTVHLSCQ EKQNTVCTCH AGFFLRENEC
VSCSNCKKSL ECTKLCLPQI EN

Estimated pI:7.42**Accession #:** P19438

NCBI Gene ID:7132

Product Name	Catalog Number	MW	AA
Recombinant Human sTNF Receptor Type 1	310-07	18.3 kDa	162
Animal-Free Recombinant Human sTNF Receptor Type 1	AF-310-07	18.3 kDa	162

sTNF Receptor Type II

Synonyms:	soluble Tumor Necrosis Factor Type II, TNFRSF1B, p75, CD120b, p80, TNFR2		
Description:	TNFRII is a member of the TNFR family of transmembrane proteins, and is expressed in immune cells and certain endothelial cells. It is a high affinity receptor for TNF- α , but manifests a lower affinity to TNF- β . Signaling through this receptor regulates various biological processes, including cell proliferation, differentiation, apoptosis, lipid metabolism, coagulation, and neurotransmission. Soluble TNFRII is capable of inhibiting TNF- α -induced activities by acting as a decoy receptor. The human TNFRII gene encodes for a 461 amino acid type I transmembrane protein, which contains a 22 amino acid signal sequence, a 235 amino acid extracellular domain, a 30 amino acid transmembrane domain, and a 174 amino acid cytoplasmic domain.		
Research Areas:	Apoptosis, Immune System, Inflammation, Lipid Metabolism, Neurobiology, Neurotransmission, Stem Cells & Differentiation		
AA Sequence:	MAPEPGSTCR LREYYDQTAQ MCCSKCSPGQ HAKVFCTKTS DTVCDSCEDS TYTQLWNWVP ECLSCGSRCS SDQVETQACT REQNRICTCR PGWYCALSQ EGCRLCAPLR KCRPGFGVAR PGTETSDVVC KPCAPGTFSN TTSSTDICRP HQICNVVAIP GNASMDAVCT STSP		
Estimated pI:	8.39	Accession #: P20333	
NCBI Gene ID:	7133		

Product Name	Catalog Number	MW	AA
Recombinant Human sTNF Receptor Type II	310-12	18.9 kDa	174

TPO

Synonyms:	Thrombopoietin, Megakaryocyte colony-stimulating factor, c-MPL Ligand, MGDF		
Description:	TPO is a lineage-specific growth factor produced in the liver, kidney and skeletal muscle. It stimulates the proliferation and maturation of megakaryocytes, and promotes increased circulating levels of platelets <i>in vivo</i> . TPO signals through the c-mpl receptor, and acts as an important regulator of circulating platelets. Human and murine TPO exhibit cross-species reactivity. The human TPO gene encodes for a 353 amino acid glycoprotein, which contains a 21 amino acid signal sequence, a 15 amino acid erythropoietin-like domain, and a highly glycosylated 179 amino acid C-terminal domain.		
Research Areas:	Immune System, Stem Cells & Differentiation, Wound Healing		
AA Sequence:			
Human TPO:	SPAPPACDLR VLSKLLRDSH VLHSRLSQCP EVHPLPTPVL LPAVDFSLGE WKTQMEETKA QDILGAVTLL LEGVMAARGQ LGPTCLSSLL GQLSGQVRLL LGALQSLTGT QLPPQGRTTA HKDPNAIFLS FQHLLRGKVR FLMLVGGSTL CVRRAPPTTA VPSRTSLVLT LNEL		
Murine TPO:	SPVAPACDPR LLNKLLRDSH LLHSRLSQCP DVDPLSIPVL LPAVDFSLGE WKTQTEQSKA QDILGAVSLL LEGVMAARGQ LEPSCLSLL GQLSGQVRLL LGALQGLLGT QLPLQGRTTA HKDPNALFLS LQQLLRGKVR FLLLVEGPTL CVRRTLPTTA VPSSTSQLLT LNKF		
Rat TPO:	SPVPPACDPR LLNKLLRDSY LLHSRLSQCP DVNPLSIPVL LPAVDFSLGE WKTQTEQSKA QDILGAVSLL LEGVMAARGQ LEPSCLSLL GQLSGQVRLL LGALQGLLGT QLPPQGRTTA HKDPSALFLS LQQLLRGKVR FLLLVEGPAL CVRRTLPTTA VPSRTSQLLT LNKF		
Estimated pI:	Human TPO: 10.36 Murine TPO: 9.80 Rat TPO: 10.23	Accession #:	Human TPO: P40225 Murine TPO: P40226 Rat TPO: P49745
NCBI Gene ID:	Human TPO: 7066 Murine TPO: 21832 Rat TPO: 81811		

Product Name	Catalog Number	MW	AA
Recombinant Human TPO	300-18	18.6 kDa	174
Animal-Free Recombinant Human TPO	AF-300-18	18.6 kDa	174
PeptoGMP® Recombinant Human TPO	GMP300-18	18.6 kDa	174
Recombinant Murine TPO	315-14	18.7 kDa	174
Animal-Free Recombinant Murine TPO	AF-315-14	18.7 kDa	174
Recombinant Rat TPO	400-34	18.7 kDa	174
Animal-Free Recombinant Rat TPO	AF-400-34	18.7 kDa	174

TRAIL/Apo2L

Synonyms:	TNF-Related Apoptosis-Inducing Ligand, TNFSF10, Apo2 Ligand, TL2, CD253		
Description:	TRAIL/Apo2L is a cytotoxic protein, which activates rapid apoptosis in tumor cells, but not in normal cells. TRAIL-induced apoptosis is achieved through binding to two death-signaling receptors, DR4 and DR5. These receptors belong to the TNFR superfamily of transmembrane proteins, and contain a cytoplasmic “death domain,” which activates the cell’s apoptotic machinery. The full length human TRAIL/Apo2L is a 281 amino acid protein, consisting of a 17 amino acid cytoplasmic domain, a 21 amino acid transmembrane domain, and a 243 amino acid extracellular domain.		
Research Areas:	Apoptosis, Cancer, Immune System		
AA Sequence:			
Human sTRAIL/Apo2L:	MRERGPQRVA AHITGTRGRS NTLSSPNSKN EKALGRKINS WESSRSGHSF LSNLHLRNGE LVIHEKGFYY IYSQTYFRFQ EEIKENTKND KQMVQYIYKY TSYPDPILLM KSARNSCWSK DAEYGLYSIY QGGIFELKEN DRIFVSVTNE HLIDMDHEAS FFGAFLVG		
Murine sTRAIL:	MRGGRPQKVA AHITGITRRS NSALIPISKD GKTLGQKIES WESSRKGHSF LNHVLFNRNGE LVIEQEGLYY IYSQTYFRFQ EAEDASKMVS KDKVRTKQLV QYIYKYTSYP DPIVLMKSAR NSCWSRDAEY GLYSIYQGGL FELKKNDRIFF VSVTNEHLMD LDQEASFFGA FLIN		
Estimated pI:	Human sTRAIL/Apo2L: 8.95 Murine TRIAL: 9.23	Accession #:	Human sTRAIL/Apo2L: P50591 Murine TRAIL: P50592
NCBI Gene ID:	Human sTRAIL/Apo2L: 8743 Murine TRAIL: 22035		

Product Name	Catalog Number	MW	AA
Recombinant Human sTRAIL/Apo2L	310-04	19.6 kDa	168
Recombinant Murine TRAIL	315-19	20.0 kDa	174

sTRAIL Receptor-1, -2

Synonyms: s**TRAIL Receptor-1:** soluble TRAIL Receptor-1, DR4, TNFRSF10A, Apo2, CD261; s**TRAIL Receptor-2:** soluble TRAIL Receptor-2, DR5, TNFRSF10B, KILLER, TRICK2A, TRICKB, CD262

Description: TRAIL Receptor-1/DR4 and TRAIL Receptor-2/DR5 belong to the TNFR superfamily of transmembrane proteins, and contain a cytoplasmic “death domain,” which can activate the cell’s apoptotic machinery. These receptors are activated by binding to either membrane-anchored or soluble TRAIL/Apo2L. The DR4 and DR5 receptors are both produced as type I transmembrane proteins, which contain an extracellular domain, a transmembrane domain, and a cytoplasmic domain. The recombinant soluble forms of DR4 and DR5 consist of the TNFR-homologous, cysteine-rich portion of their respective extracellular domains.

Research Areas: Cancer, Immune System

AA Sequence:

Human sTRAIL Receptor-1: SGTGAAAATP SKVWGSSAGR IEPRGGGRGA LPTSMGQHGP SARARAGRAP GPRPAREASP RLRVHKTFKF VVVGVLQVQV PSSAATIKLH DQSIGTQQWE HSPLGELCPP GSHRSERPGA CNRCTEGVGY TNASQQLFAC LPCTACKSDE EERSPCTTTR NTACQCKPGT FRNDNSAEMC RKCSTGCPRG MVKVKDCTPW SDIECVHKES GNGHN

Human sTRAIL Receptor-2: MESALITQQD LAPQQRVAPQ QKRSSPSEGL CPPGHHISED GRDCISCKYG QDYSTHWNDL LFCLRCTRCD SGEVELSPCT TTRNTVCQCE EGTFREEDSP EMCRCRCRTGC PRGMVKVGDC TPWSDIECVH KES

Estimated pI: sTRAIL Receptor-1: 10.71 **Accession #:** sTRAIL Receptor-1: O00220
sTRAIL Receptor-2: 5.01 sTRAIL Receptor-2: O14763

NCBI Gene ID: sTRAIL Receptor-1: 8797
sTRAIL Receptor-2: 8795

Product Name	Catalog Number	MW	AA
Recombinant Human sTRAIL Receptor-1	310-18	22.7 kDA	215
Recombinant Human sTRAIL Receptor-2	310-19	14.9 kDa	133

TREM-1

Synonyms:

Description:

Research Areas:

AA Sequence (monomer):

Estimated pI:

NCBI Gene ID:

Triggering receptor expressed on monocytes 1, CD354

Triggering receptor expressed on myeloid cells-1 (TREM-1) is a type 1 transmembrane glycoprotein belonging to the immunoglobulin superfamily of cell surface receptors that is constitutively expressed on the surface of monocytes, neutrophils and macrophages. The first identified member of the TREM family of receptors, TREM-1 is a proponent of amplified inflammatory responses triggered by bacterial and fungal infection, and functions in association with the signal transduction adaptor molecule DAP12. TREM-1 activation induces the sustained secretion of proinflammatory chemokines (IL-8 and MCP-1) and cytokines (TNF- α , IL-1 β , and IL-6), the respiratory burst and degranulation of neutrophils, the upregulation of adhesion molecules involved in leukocyte extravasation, and tissue degradation. Involvement and increased expression of TREM-1, or soluble TREM-1, in infectious, as well as some non-infectious, inflammatory conditions may highlight the protein’s potential as a possible diagnostic marker in cases of severe inflammation, such as myocardial dysfunction related to severe sepsis and spontaneous preterm labor. TREM-1 involvement in inflammatory response has also been noted as a predictor of both progression and aggression in certain cancers.

Cancer, Immune System, Inflammation

ATKLTEEKYE LKEGQTLDDVK CDYTLKFKAS SQKAWQIIRD GEMPKTLACT ERPSKNSHPV QVGRILEEDY
HDHGLLRVRM VNLQVEDSGL YQCVIYQPPK EPHMLFDRIR LVVTKGFSGT PGSNENSTQN VYKIPPTTTK
ALCPLYTSPR TVTQAPPKST ADVSTPDSEI NLTNVTDIIR GGPKSCDKTH TCPPCPAPEL LGGPSVFLFP
PKPKDTLMIS RTPEVTCVVV DVSHEDPEVK FNWYVDGVEV HNAKTKPREE QYNSTYRVVS VLTVLHQDWL
NGKEYKCKVS NKALPAPIEK TISKAKGQPR EPQVYTLPPS RDELTKNQVS LTCLVKGFYP SDIAVEWESN
GQPENNYKTT PPVLDSGGSF FLYSKLTVDK SRWQQGNVFS CSVMEALHN HYTQKSLSLs PGK

7.98

Accession #: Q9NP99

54210

Product Name	Catalog Number	MW	AA
Recombinant Human TREM-1 Fc	310-36	92.6 kDa	826

TSG

Synonyms:

Twisted Gastrulation Protein

Description:

Twisted Gastrulation Protein (TSG) is a secreted BMP-binding protein that is structurally related to the BMP antagonists Chordin and Noggin. TSG can inhibit BMP activity by binding directly to BMP proteins, and can act either as a BMP-4 agonist or antagonist (depending on the specific biochemical environment) by binding to the BMP-4/Chordin complex.

Research Areas:

Bone/Skeletal/Cartilage

AA Sequence:

CNKALCASDV SKCLIQELCQ CRPGEGNCSC CKECMLCLGA LWDECCDCVG MCNPRNYSdT PPTSKSTVEE
LHEPIPSLFR ALTEGDTQLN WNIVSFPVAE ELSHHENLVS FLETVNQPHH QNVSVPSNNV HAPYSSDKEH
MCTVVYFDDC MSIHQCKISC ESMGASKYRW FHNACCECIG PECIDYGSKT VKCMNCMF

Estimated pI:

4.90

Accession #:

Q9GZX9

NCBI Gene ID:

57045

Product Name	Catalog Number	MW	AA
Recombinant Human TSG	120-09	22.2 kDa	198

TSLP

Synonyms:	Thymic Stromal Lymphopoietin		
Description:	TSLP is a hemopoietic protein that is expressed in the heart, liver and prostate. TSLP overlaps biological activities with IL-7, and binds with the heterodimeric receptor complex consisting of the IL-7R α -chain (IL-7R α) and the TSLP-specific chain (TSLPR). Like IL-7, TSLP induces phosphorylation of STAT3 and STAT5, but uses kinases other than the JAKs for activation. TSLP prohibits apoptosis and stimulates growth of the human acute myeloid leukemia (AML)-derived cell line MUTZ3. It induces the release of T cell-attracting chemokines TARC and MDC from monocytes, and activates CD11c (+) dendritic cells (DCs). TSLP-activated DCs have been shown to prime naïve T cells to produce the proallergic cytokines (IL-4, IL-5, IL-13, TNF- α) while down-regulating IL-10 and IFN- γ , suggesting a role in initiating allergic inflammation.		
Research Areas:	Apoptosis, Immune System, Inflammation		
AA Sequence:	MYDFTNCDFE KIKAAAYLSTI SKDLITYMSG TKSTEFNNTV SCSNRPHCLT EIQSLTFNPT AGCASLAKEM FAMKTKAALA IWCPGYSETQ INATQAMKKR RKRKVTTNKC LEQVSQQLQGL WRRFNRPLLK QQ		
Estimated pI:	10.03	Accession #: Q969D9	
NCBI Gene ID:	85480		

Product Name	Catalog Number	MW	AA
Recombinant Human TSLP	300-62	15.0 kDa	132

TWEAK

Synonyms:

TNF-related Weak Inducer of Apoptosis, TNFSF12, DR3LG, Apo3 Ligand

Description:

TWEAK belongs to the TNF family of ligands, and signals through TWEAKR, also known as TNFRSF12A. TWEAK is expressed in a variety of tissues, including the adult heart, pancreas, skeletal muscle, small intestine, spleen and peripheral blood lymphocytes. TWEAK has the ability to induce NF-κB activation and chemokine secretion, and to exert an apoptotic activity in certain cells, such as HT-29 human adenocarcinoma cells when cultured in the presence of IFN-γ. TWEAK also promotes proliferation and migration of endothelial cells. The human TWEAK gene encodes for a 249 amino acid type II transmembrane protein, which contains a 21 amino acid cytoplasmic domain, a 21 amino acid transmembrane domain, and a 207 amino acid extracellular domain.

Research Areas:

Angiogenesis/Cardiovascular, Apoptosis, Immune System, Inflammation, Neurobiology

AA Sequence:

MKGRKTRARR AIAAHYEVHP RPGQDGAQAG VDGTVSGWEE ARINSSSPLR YNRQIGEFIV TRAGLYYLYC QVHFDEGKAV YLKLDLLVDG VLALRCLEEF SATAASSLGP QLRLCQVSGL LALRPGSSLR IRTLPAHLK AAPFLTYFGL FQVH

Estimated pI:

9.97

Accession #:

O43508

NCBI Gene ID:

8742

Product Name	Catalog Number	MW	AA
Recombinant Human TWEAK	310-06	17.0 kDa	154
Animal-Free Recombinant Human TWEAK	AF-310-06	17.0 kDa	154

TWEAK Receptor

Synonyms:	TNF-related Weak Inducer of Apoptosis Receptor, TNFRSF12A, FGF-inducible 14, FN14
Description:	TWEAKR belongs to the TNF family of transmembrane proteins, and contains a cytoplasmic “death domain,” which can activate a cell’s apoptotic machinery. It is expressed in the spleen, thymus, peripheral blood lymphocytes, colon, and small intestine. Signal transduction by TWEAKR can be activated by either membrane-anchored or soluble TWEAK.
Research Areas:	Cancer, Immune System, Stroke
AA Sequence:	EQAPGTAPCS RGSSWSADLD KCMDCASCRA RPHSDFCLGC AAAPPAPFRL LWP
Estimated pI:	7.01
NCBI Gene ID:	51330
	Accession #: Q9NP84

Product Name	Catalog Number	MW	AA
Recombinant Human TWEAK Receptor	310-21	5.6 kDa	53

Uteroglobin

Synonyms:	Clara Cell Phospholipid-Binding Protein, CCPBP, Clara Cells 10 kDa secretory protein, CC10, Secretoglobin family 1A member 1, Urinary protein 1, UP-1, UP1, Urine protein 1		
Description:	Uteroglobin, which is a member of the Secretoglobin superfamily and is also known as Clara cell phospholipid-binding protein, is a multifunctional protein that can exert anti-inflammatory and anti-tumorigenic effects by binding small hydrophobic molecules such as phospholipids and prostaglandins. The small, non-glycosylated protein named for its high levels of expression in pre-implantation embryos, where it exhibits growth stimulatory effects, is produced and secreted by the non-ciliated, non-mucous Clara cells predominant in the epithelial surfaces of pulmonary airways, as well as other non-ciliated epithelia. Members of the Secretoglobin superfamily demonstrate a high level of structural conservation and are characterized as small, secretory homo- or heterodimers. In addition to sequestering pro-inflammatory mediators and carcinogens, Uteroglobin has been implicated in the inhibition of cell migration and invasion, platelet aggregation, and T cell differentiation.		
Research Areas:	Cancer, Chemotaxis, Immune System, Inflammation, Stem Cells & Differentiation		
AA Sequence (monomer):	MEICPSFQRV IETLLMDTPS SYEAAMELFS PDQDMREAGA QLKKLVDTL P QKPRESI IKL MEKIAQSSLC N		
Estimated pI:	4.56	Accession #: P11684	
NCBI Gene ID:	7356		

Product Name	Catalog Number	MW	AA
Recombinant Human Uteroglobin	150-18	16.1 kDa	142

VAP-1

Synonyms:	Vascular Adhesion Protein-1, AOC3, SSAO, HPAO, Copper Amine Oxidase, Membrane Primary Amine Oxidase		
Description:	VAP-1 is a type II membrane cell adhesion protein belonging to the copper/topaquinone oxidase family. It is primarily expressed on the high endothelial venules of peripheral lymph nodes and on hepatic endothelia. VAP-1 can catalyze the oxidative deamination of low molecular weight amines, and plays an important role in the migration of lymphocytes to inflamed tissue. Inhibition of VAP-1 can protect against inflammation-related damage to certain injured tissues. Additionally, VAP-1 can function as a significant prognostic marker for certain cancers and cardiovascular diseases.		
Research Areas:	Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation		
AA Sequence:	GRGGDGGEPS QLPHCPSVSP SAQPWTHPGQ SQLFADLSRE ELTAVMRFLT QRLGPGLVDA AQARPSDNCV FSVELQLPPK AAALAHLD RG SPPPAREALA IVFFGRQPQP NVSELVVGPL PHPSYMRDVT VERHGGPLPY HRRPVLQFEY LDIDQMIFNR ELPQASGLLH HCCFYKHRGR NLVTMTTAPR GLQSGDRATW FGLYYNISGA GFFLHHVGLE LLVNHKALDP ARWTIQKFY QGRYYDSLAQ LEAQFEAGLV NVVLIPDNGT GGSWSLKSPV PPGPAPPLQF YPQGPRFSVQ GSRVASSLWT FSFGLGAFSG PRIFDVRFQG ERLVYEISLQ EALAIYGGNS PAAMTTRYVD GGFGMGKYTT PLTRGVDCPY LATYVDWHFL LESQAPKTIR DAFCVFEQNQ GLPLRRHSD LYSHYFGGLA ETVLVVRSMS TLLNYDYVWD TVFHPSGAIE IRFYATGYIS SAFLFGATGK YGNQVSEHTL GTVHTSAHF KVDLDVAGLE NWVWAEDMVF VPMAPVWSPE HQLQLQVTR KLEEMEEQAA FLVGSATPRY LYLASNHSNK WGHPRGYRIQ MLSFAGEPLP QNSSMARGFS WERYQLAVTQ RKEEEPSSSS VFNQNDPWAP TVDFSDFINN ETIAGKDLVA WVTAGFLHIP HAEDIPNTVT VGNGVGFFLR PYNFFDEDPS FYSADSIYFR GDQDAGACEV NPLACLPQAA ACAPDLPAFS HGGFSHN		
Estimated pI:	5.99	Accession #: Q16853	
NCBI Gene ID:	8639		

Product Name	Catalog Number	MW	AA
Recombinant Human VAP-1	150-16	81.8 kDa	737

Vaspin

Synonyms:

Visceral adipose tissue-derived serpin

Description:

Vaspin is a newly described adipocytokine expressed predominantly in visceral white adipose tissues. Structure analysis of vaspin predicts the presence of three β -sheets, nine α -helices, and one central loop, which are distinctive structural features of Serpin family members. The serpins are irreversible (“suicidal”) serine-protease inhibitors, characterized by having more than 30% sequence homology with α 1-antitrypsin and a conserved tertiary structure, which contains an exposed reactive center loop that acts as a pseudo-substrate for the target proteinase. Members of this family play an important role in a number of fundamental biological processes, including blood coagulation, fibrinolysis, complement activation, angiogenesis, inflammation, and tumor suppression. In humans, the serpins represent approximately 2% of total serum proteins, of which 70% is α 1-antitrypsin. Vaspin exhibits 40.2% sequence identity with α 1-antitrypsin. Yet, its protease inhibitory activity is still unknown. Vaspin mRNA expression in visceral fat is positively correlated with BMI and percent of body fat. Administration of vaspin to obese mice improved glucose tolerance and insulin sensitivity, reflected by normalized blood glucose levels. It also led to the reversal of altered expression of diabetes-relevant adipocytokines, including leptin, adiponectin, resistin, and TNF- α . These findings suggest a potential clinical use for Vaspin in ameliorating certain aberrations seen in the diabetic/obesity metabolic syndrome.

Research Areas:

Angiogenesis/Cardiovascular, Diabetes/Weight Regulation, Immune System, Inflammation

AA Sequence:

MLKPSFSPRN YKALSEVQGW QORMAAKELA RQNMDLGFKL LKKLAFYNPG RNIFLSPLSI STAFSMLCLG
AQDSTLDEIK QGFNFRKMPE KDLHEGFHYI IHELTQKTQD LKLSIGNTLF IDQRLQPQRK FLEDAKNFYS
AETILTNTFN LEMAQKQIND FISQKTHGKI NNLIENIDPG TVMLLANYIF FRARWKHEFD PNVTKEDDF
LEKNSSVKVPmMFRSGIYQV GYDDKLSCTI LEIPYQKNIT AIFILPDEGK LKHLEKGLQV DTFSRWKTLTLL
SRRVVDVSVPLHMTGTFDL KKTLSYIGVS KIFEEHGDLT KIAPHRSLKV GEAVHKAELK MDERGTEGAA
GTGAQTLPME TPLVVKIDKP YLLLIYSEKI PSVLFLGKIV NPIGK

Estimated pI:

9.20

Accession #:

Q8IW75

NCBI Gene ID:

145264

Product Name	Catalog Number	MW	AA
Recombinant Human Vaspin	130-11	45.2 kDa	395

VCAM-1

Synonyms: CD106, INCAM-100, MGC108734, MGC99561, Vascular Cell Adhesion Molecule 1, VCAM, VCAM1, VCAM1B, VECAM1

Description: VCAM is a 110 kDa, cell surface integral membrane glycoprotein that belongs to the Ig-related superfamily of adhesion molecules. The primary function of VCAM-1 is the mediation of leukocyte-endothelial cell adhesion and signal transduction. VCAM-1 may play a vital role in the development of several diseases, including atherosclerosis and rheumatoid arthritis. The human VCAM-1 gene codes for a 715 amino acid transmembrane glycoprotein containing a 19 amino acid cytoplasmic domain, a 22 amino acid transmembrane domain, and a 674 amino acid extracellular domain.

Research Areas: Angiogenesis/Cardiovascular, Immune System, Rheumatoid Arthritis

AA Sequence:

Human VCAM-1: FKIEETTPESR YLAQIGDSVS LTCSTTGCES PFFSWRTQID SPLNGKVTNE GTTSTLTMNP VSFENEHSYL
CTATCESRKL EKGIQVEIYS FPKDPEIHLS GPLEAGKPIT VKCSVADVYP FDRLEIDLK GDHLMKSQEF
LEDADRKSLE TKSLEVTFTP VIEDIGKVLV CRAKLHIDEM DSVPTVRQAV KELQVYISPK NTVISVNPST
KLQEGGSVTM TCSSEGLPAP EIFWSKKLDN GNLQHLSGNA TLTLIAMRME DSGIYVCEGV NLIGKNRKEV
ELIVQEKPFT VEISPGPRIA AQIGDSVMLT CSVMGCESPS FSWRTQIDSP LSGKVRSEGT NSTLTLSPPVS
FENEHSYLCT VTCGHKKLEK GIQVELYSFP RDPEIEMSGG LVNGSSVTVS CKVPSVYPLD RLEIELLKGE
TILENIEFLE DTDMSLENK SLEMTFIPTI EDTGKALVCQ AKLHIDDMEF EPKQRQSTQT LYVNVAPRDT
TVLVSPSSIL EEGSSVNMTC LSQGFPAKPI LWSRQLPNGE LQPLSENATL TLISTKMEDS GYVLCEGINQ
AGRSRKEVEL IIQVTPKDIK LTAFPSESVK EGDTVIISCT CGNVPETWII LKKKAETGDT VLKSIDGAYT
IRKAQLKDAG VYECESKNKV GSQRLSLTLD VQGRENNKDY FSP

Murine VCAM-1: FKIEISPEYK TIAQIGDSMA LTCSTTGCES PLFSWRTQID SPLNAKVRTE GSKSVLTMEP VSFENEHSYL
CTATCGSGKL ERSIHVDIYS FPKDPEIQFS GPLEVGKPVV VKCLAPDIYP VYRLEIDLK GDQLMNRQEF
SSEEMTKSLE TKSLEVTFTP VIEDIGKALV CRAKLHIDQI DSTLKERETV KELQVYISPR NTTISVHPST
RLQEGGAVTM TCSSEGLPAP EIFWGRKLDN EVLQLLSGNA TLTLIAMRME DSGVYVCEGV NLIGRDKAEV
ELVVQEKPFI VDISPGSQVA AQVGDSVVLV CAAIGCDSPS FSWRTQTDSP LNGVVRNEGA KSTLVLSVVG
FEDEHSYLCA VTCLQRTLEK RTQVEVYSFP EDPVIKMSGP LVHGRPVTVN CTVPNVYPFD HLEIELLKGE
TTLMKKYFLE EMGIKSLETK ILETTFIPTI EDTGKSLVCL ARLHSGEMES EPKQRQSVQP LYVNVAPKET
TIWVSPSPIL EEGSPVNLTC SSDGIPAPKI LWSRQLNNGE LQPLSENTTL TFMSTKRDDS GIYVCEGINE
AGISRKSVEL IIQVSPKDIQ LTVFPKSKSVK EGDTVIISCT CGNVPETWII LKKKAKTGDM VLKSVVDSYT
IRQAQLQDAG IYECESKTEV GSQRLSLTLD VKGKEHNKNY FSPE

Estimated pI: Human VCAM-1: 4.81 **Accession #:** Human VCAM-1: P19320
Murine VCAM-1: 5.27 Murine VCAM-1: P29533

NCBI Gene ID: Human VCAM-1: 7412
Murine VCAM-1: 22329

Product Name	Catalog Number	MW	AA
Recombinant Human VCAM-1	150-04	74.1 kDa	673
Recombinant Murine VCAM-1	315-37	74.4 kDa	674

VEGF-A

Synonyms:	VEGF ₁₂₁ : Vascular Endothelial Growth Factor 121, VPF; VEGF ₁₆₅ : Vascular Endothelial Growth Factor 165, VPF, Folliculostellate cell-derived growth factor, Glioma-derived endothelial cell mitogen		
Description:	VEGF is a potent growth and angiogenic cytokine. It stimulates proliferation and survival of endothelial cells, and promotes angiogenesis and vascular permeability. Expressed in vascularized tissues, VEGF plays a prominent role in normal and pathological angiogenesis. VEGF signals through three receptors; fms-like tyrosine kinase (flt-1), KDR gene product (the murine homolog of KDR is the flk-1 gene product) and the flt4 gene product. Due to its increased acidity, VEGF121 circulates more freely than other VEGF forms, which bind more tightly with vascular heparin sulfates. The human VEGF gene is organized into eight exons separated by seven introns. VEGF polypeptide chains contain 121, 145, 165, 189 and 209 amino acid residues. Subsequent dimerization of these chains yields the various VEGF functional forms, which are disulfide-linked homodimeric proteins. The 121, 145 and 165 amino acid variants are secreted proteins, whereas the higher M.W. variants are cell associated proteins.		
Research Areas:	Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation		
AA Sequence (monomer):			
Human VEGF ₁₂₁ :	APMAEGGGQN HHEVVKFMDV YQRSYCHPIE TLVDIFQEYP DEIEYIFKPS CVPLMRCGGC CNDEGLECVPT TEESNITMQI MRIKPHQSQH IGEMSFLQHN KCECRPKKDR ARQENC DKPR R		
Human VEGF ₁₆₅ :	APMAEGGGQN HHEVVKFMDV YQRSYCHPIE TLVDIFQEYP DEIEYIFKPS CVPLMRCGGC CNDEGLECVPT TEESNITMQI MRIKPHQSQH IGEMSFLQHN KCECRPKKDR ARQENPCGPC SERRKHLFVQ DPQTCKCCK NTDSRCKARQ LELNERTCRC DKPRR		
Murine VEGF ₁₆₅ :	MAPTTEGEQK SHEVIKFMDV YQRSYCRPIE TLVDIFQEYP DEIEYIFKPS CVPLMRCAGC CNDEALECVPT TSESNTMQI MRIKPHQSQH IGEMSFLQHS RCECRPKKDR TKPEKHCEPC SERRKHLFVQ DPQTCKCCK NTDSRCKARQ LELNERTCRC DKPRR		
Rat VEGF ₁₆₅ :	MAPTTEGEQK AHEVVKFMDV YQRSYCRPIE TLVDIFQEYP DEIEYIFKPS CVPLMRCAGC CNDEALECVPT TSESNTMQI MRIKPHQSQH IGEMSFLQHS RCECRPKKDR TKPEKHCEPC SERRKHLFVQ DPQTCKCCK NTDSRCKARQ LELNERTCRC DKPRR		
Estimated pI:	Human VEGF ₁₂₁ : 5.82 Human VEGF ₁₆₅ : 8.51 Murine VEGF ₁₆₅ : 9.10 Rat VEGF ₁₆₅ : 9.10	Accession #:	Human VEGF ₁₂₁ : P15692 Human VEGF ₁₆₅ : P15692 Murine VEGF ₁₆₅ : Q00731 Rat VEGF ₁₆₅ : P16612
NCBI Gene ID:	Human VEGF ₁₂₁ : 7422 Human VEGF ₁₆₅ : 7422 Murine VEGF ₁₆₅ : 22339 Rat VEGF ₁₆₅ : 83785		

Product Name	Catalog Number	MW	AA
Recombinant Human VEGF ₁₂₁	100-20A	28.4 kDa	242
Animal-Free Recombinant Human VEGF ₁₂₁	AF-100-20A	28.4 kDa	242
Recombinant Human VEGF ₁₆₅	100-20	38.2 kDa	330
Animal-Free Recombinant Human VEGF ₁₆₅	AF-100-20	38.2 kDa	330
PeproGMP® Recombinant Human VEGF ₁₆₅	GMP100-20	38.2 kDa	330
Recombinant Murine VEGF ₁₆₅	450-32	39.0 kDa	330
Animal-Free Recombinant Murine VEGF ₁₆₅	AF-450-32	39.0 kDa	330
Recombinant Rat VEGF ₁₆₅	400-31	38.5 kDa	330

VEGF-B

Synonyms:

Vascular Endothelial Growth Factor-B, VEGF-related factor, VRF

Description:

VEGF-B, a member of the VEGF family, is a potent growth and angiogenic cytokine. It promotes DNA synthesis in endothelial cells, helps regulate angiogenesis and vascular permeability, and inhibits apoptosis in certain smooth muscle cells and neurons. VEGF-B is expressed in all tissues except the liver. It forms cell surface-associated, disulfide-linked homodimers, and can form heterodimers with VEGF-A. There are two known isoforms, formed by alternative splicing, which have been designated VEGF-B167 and VEGF-B186. Both forms have identical amino-terminal sequences encoding a cysteine knot-like structural motif, but differ in their carboxyl-terminal domains. Both VEGF-B isoforms signal only through the VEGFR1 receptor.

Research Areas:

Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation

AA Sequence (monomer):

PVSQPDAPGH QRKVVSWIDV YTRATCQPRE VVVPLTVELM GTVAKQLVPS CVTVQRCGGC CPDDGLECVP
TGQHQVRMQI LMIRYPSSQL GEMSLEEHSQ CECRPKKKDS AVKPDSPRPL CPRCTQHHQR PDPRTCRCRC
RRRSFLRCQG RGLELNPDTG RCRKLRR

Estimated pI:

10.85

Accession #:

P49765

NCBI Gene ID:

7423

Product Name	Catalog Number	MW	AA
Recombinant Human VEGF-B	100-20B	38.0 kDa	334

VEGF-C

Synonyms:	Vascular Endothelial Growth Factor-C, VRP, Flt4-Ligand
Description:	VEGF-C, a member of the VEGF/PDGF family of structurally related proteins, is a potent angiogenic cytokine. It promotes endothelial cell growth, promotes lymphangiogenesis, and can also affect vascular permeability. VEGF-C is expressed in various tissues, but is not produced in peripheral blood lymphocytes. It forms cell surfaced-associated, non-covalent, disulfide-linked homodimers, and can bind and activate both VEGFR-2 (flk1) and VEGFR-3 (flt4) receptors. During embryogenesis, VEGF-C may play a role in the formation of the venous and lymphatic vascular systems. Both VEGF-C and VEGF-D are over-expressed in certain cancers, and the resulting elevated levels of VEGF-C or VEGF-D tend to correlate with increased lymphatic metastasis. Recombinant Human VEGF-C is a disulfide-linked homodimeric protein consisting of two 13.5 kDa polypeptide chains of 116 amino acid residues. Due to glycosylation, the protein migrates as a 30.0-33.0 kDa band by SDS-PAGE analysis under non-reducing conditions.
Research Areas:	Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation
AA Sequence (monomer):	AHYNTEILKS IDNEWRTQC MPREVCIDVG KEFGVATNTF FKPPCVSVYR CGGCCNSEGL QCMNTSTSYL SKTLFEITVP LSQGPKEPTI SFANHTSCRC MSKLDVYRQV HSIIRR
Estimated pI:	9.74Accession #: P49767
NCBI Gene ID:	7424

Product Name	Catalog Number	MW	AA
Recombinant Human VEGF-C	100-20CD	27.0 kDa	232

VEGF-D

Synonyms:

Vascular Endothelial Growth Factor-D, FIGF

Description:

VEGF-D, a member of the VEGF/PDGF family of structurally related proteins, is a potent angiogenic cytokine. It promotes endothelial cell growth, promotes lymphangiogenesis, and can also affect vascular permeability. VEGF-D is highly expressed in the lung, heart, small intestine and fetal lung, and at lower levels in the skeletal muscle, colon, and pancreas. It forms cell surface-associated, non-covalent, disulfide-linked homodimers, and can bind and activate both VEGFR-2 (flk1) and VEGFR-3 (flt4) receptors. During embryogenesis, VEGF-D may play a role in the formation of the venous and lymphatic vascular systems. It also participates in the growth and maintenance of differentiated lymphatic endothelium in adults. Both VEGF-C and VEGF-D are over-expressed in certain cancers, and the resulting elevated levels of VEGF-C or VEGF-D tend to correlate with increased lymphatic metastasis.

Research Areas:

Angiogenesis/Cardiovascular, Cancer, Immune System, Inflammation, Stem Cells & Differentiation

AA Sequence (monomer):

FAATFYDIET LKVIDEEWQR TQCSPRETCV EVASELGKST NTFFKPPCVN VFRCGGCCNE ESLICMNTST
SYISKQLFEI SVPLTSVPPEL VPVKVANHTG CKCLPTAPRH PYSIIRR

Estimated pI:

7.30

Accession #: O43915

NCBI Gene ID:

2277

Product Name	Catalog Number	MW	AA
Recombinant Human VEGF-D	100-20D	26.2 kDa	234

Vimentin

Synonyms:	Vim	
Description:	Vimentin is a class III intermediate filament protein predominantly found in cells of mesenchymal origins, such as vascular endothelium and blood cells, where it functions as a major cytoskeletal component. Due to its importance and abundance in the cytoskeletal structure of mesenchymally-derived cells, vimentin is frequently used as a developmental marker within cells of mesenchymal origin or cells undergoing epithelial-mesenchymal transition, which can occur during both normal and metastatic growth. An active participant within several critical processes of cellular organization and protein regulation, vimentin is involved in the anchorage of organelles within the cytoplasmic matrix, development of astrocytes, and the disassembly of cellular components during the execution phase of apoptosis. Abnormalities in the normal physiological pathways of vimentin have been implicated in deficient motility and directional migration involved in wound healing, cellular growth and development, as well as the adhesion-site accumulation of vimentin on lens epithelial cells in cases of dominant cataracts.	
Research Areas:	Apoptosis, Wound Healing	
AA Sequence:	STRSVSSSSY RRMFGGPGTA SRPSSRSYV TTSTRYSLG SALRPSTSRs LYASSPGGVY ATRSSAVRLR SSVPGVRLQ DSVDFSLADA INTEFKNTRT NEKVELQELN DRFANYIDKV RFLEQQNKIL LAELEQLKGQ GKSRLGDLYE EEMRELRRQV DQLTNDKARV EVERDNLAED IMRLREKLQE EMLQREEAEN TLQSFRQDQD NASLARLDLE RKVESLQEEI AFLKKLHEEE IQELQAQIQE QHVQIDVDVS KPDLTAAALRD VRQQYESVAA KNLQEAEEWY KSKFADLSEA ANRNNDALRQ AKQESTEYRR QVQSLTCEVD ALKGTNESLE RQMREMEENF AVEAANYQDT IGRLQDEIQN MKEEMARHLR EYQDLLNVKM ALDIEIATYR KLEGEESRI SLPLPNFSSSL NLRETNLDSL PLVDTHSKRT LLIKTVETRD GQVINETSQH HDDLEHHHHH H	
Estimated pI:	5.10	Accession #: P08670
NCBI Gene ID:	7431	

Product Name	Catalog Number	MW	AA
Recombinant Human Vimentin	110-10	54.3 kDa	471

Visfatin

Synonyms:	PBEF (Pre-B-cell colony-enhancing factor), NAmPRTase (nicotinamide phosphoribosyltransferase), Nampt, VF
Description:	Visfatin is a 55 kDa protein produced and secreted primarily by white adipose tissue. Recently, visfatin was isolated from visceral fat deposits and shown to possess insulin-mimetic activity. Like insulin, visfatin exerts hypoglycemic effects by interacting with the insulin receptor. The binding affinity of visfatin for the insulin receptor is similar to that of insulin, but it does not compete with insulin, suggesting that the two proteins interact with different receptor sites. The circulating levels of visfatin are much lower than those of insulin and are not affected by feeding, implying that the hypoglycemic effect of visfatin may not be of physiological importance. The plasma visfatin levels, like those of leptin, correlate positively with the percent of body fat, and increase during the development of obesity. Another similarity between visfatin and leptin is that their amino acid sequence is highly conserved across different mammalian species and shows no homology to any known protein. Receptors for both leptin (Ob-R) and visfatin (i.e. the insulin receptor) are expressed by neurons within the arcuate nucleus of the hypothalamus, a brain area that plays a pivotal role in the regulation of energy metabolism. Although the metabolic function of visfatin is still unknown, it appears that this newly identified adipocytokine might play an important role, similar to that of leptin, in the regulation of body weight, i.e. as an afferent signal reflecting excess body fat. The PBEF gene encodes a polypeptide of 491 amino acid residues. The secreted form of this polypeptide, i.e. visfatin, contains 465 residues and lacks the first 26 N-terminal residues of the PBEF gene product. The 491-residue form has been shown to be a nicotinamide phosphoribosyltransferase, a cytosolic enzyme involved in NAD biosynthesis. The amino acid sequence of visfatin is highly conserved across different species and shows no homology to any known protein. It contains 5 cysteine residues, of which only two of them appear to be involved in disulfide bridge formation.
Research Areas:	Diabetes/Weight Regulation, Lipid Metabolism, Neurobiology
AA Sequence:	MPPNTSKVYS YFECREKKTE NSKLRKVKEY ETVFYGLQYI LNKYLKGKVV TKEKIQEAKD VYKEHFQDDV FNEKGWNYIL EKYDGHLPIE IKAVPEGFVI PRGNVLFTVE NTDPECYWLT NWIETILVQS WYPITVATNS REQKKILAKY LLETSGNLDG LEYKLHDFGY RGVSSQETAG IGASAHLVNF KGTDTVAGLA LIKKYYGTKD PVPGYSPVAA EHSTITAWGK DHEKDAFEHI VTQFSSVPVS VVSDSYDIYN ACEKIWGEDL RHLIVSRSTQ APLIIRPD SG NPLDTVLKVL EILGKKFPVT ENSKGKLLP PYLRVIQGDG VDINTLQEIV EG MKQKMWSI ENIAFGSGGG LLQKLTRDLL NCSFKCSYVV TNGLGINVFK DPVADPNKRS KKGRLSLHRT PAGNFVTLEE GKGDL E EYGQ DLLHTVFKNG KVTKSYSFDE IRKNAQLNIE LEAAHH
Estimated pI:	7.00
NCBI Gene ID:	10135
	Accession #: P43490

Product Name	Catalog Number	MW	AA
Recombinant Human Visfatin	130-09	52.6 kDa	466

Vitronectin

Synonyms:

VTN, Serum-spreading factor, V75

Description:

Vitronectin is a secreted glycoprotein that is synthesized in the liver. It circulates primarily in monomeric form, but can undergo conformational change to a structure that forms disulfide-linked multimers. The multimeric vitronectin can efficiently bind to, and incorporate into, the extracellular matrix. Within the matrix, vitronectin can support cell adhesion through binding to various integrins and other proteoglycans. Additionally, recombinant vitronectin can function as a chemically-defined matrix component in human embryonic stem cell renewal media.

Research Areas:

Immune System, Neurobiology, Stem Cells & Differentiation

AA Sequence:

DQESCKGRCT EGFNVDKKCQ CDELCSYYQS CCTDYTAECK PQVTRGDVFT MPEDEYTVYD DGEEKNNATV
HEQVGGPSLT SDLQAQSKGN PEQTPVLKPE EEAPAPEVGA SKPEGIDSRP ETLHPGRPQP PAEEELCSGK
PFDAFTDLKN GSLFAFRGQY CYELDEKAVR PGYPKLIRDV WGIEGPIDAA FTRINCQGKT YLFKGSQYWR
FEDGVLDPDY PRNISDGFDG IPDNVDAALA LPAHSYSGRE RVYFFKGKQY WEYQFQHQPS QEECEGSSLS
AVFEHFAMMQ RDSWEDIFEL LFWGRTSAGT RQPQFISRDW HGVPGQVDAA MAGRIYISGM APRPSLAKKQ
RFRHRNRKGY RSQRGHSRGR NQNSRRPSRA TWLSLFSSEE SNLGANNYDD YRMDWLVPAT CEPIQSVFFF
SGDKYYRVNL RTRRVDTVDP PYPRSIAQYW LGCPAPGHL

Estimated pI:

5.34

Accession #:

P04004

NCBI Gene ID:

7448

Product Name	Catalog Number	MW	AA
Recombinant Human Vitronectin	140-09	52.2 kDa	459
Animal-Free Recombinant Human Vitronectin	AF-140-09	52.2 kDa	459

WISP-1

Synonyms:

Wnt-1 Inducible Signaling Pathway protein-1, CCN4, Wnt-1-induced secreted protein

Description:

WISP-1 is a member of the CCN family of secreted, cysteine-rich regulatory proteins. It is expressed in the heart, kidney, lung, pancreas, placenta, ovary, small intestine and spleen. WISP-1 is a β -catenin-regulated protein that can contribute to tumorigenesis, and has also been shown to play a role in bone development and fracture repair.

Research Areas:

Bone/Skeletal/Cartilage, Cancer, Development/Repair, Immune System, Neurobiology, Stem Cells & Differentiation

AA Sequence:

TALSPAPTTM DFTPAPLEDT SSRPQFCKWP CECPPSPPRC PLGVSLITDG CECCKMCAQQ LGDNCTEAAI
CDPHRGLYCD YSGDRPRYAI GVCAQVVGVG CVLDGVRVNN GQSFQPNCKY NCTCIDGAVG CTPLCLRVRP
PRLWCPHPRR VSIPGHCCEQ WVCEDDAKRP RKTAPRDTGA FDAVGEVEAW HRNCIAYTSP WSPCSTSCGL
GVSTRISNVN AQCWPEQESR LCNLRPCDVD IHTLIKAGKK CLAVYQPEAS MNFTLAGCIS TRSYQPKYCG
VCMDNRCCIP YKSKTIDVSF QCPDGLGFSR QVLWINACFC NLSCRNPNDI FADLESYPDF SEIAN

Estimated pI:

6.62

Accession #:

O95388

NCBI Gene ID:

8840

Product Name	Catalog Number	MW	AA
Recombinant Human WISP-1	120-18	38.1 kDa	345

WISP-3

Synonyms:

Wnt-1 Inducible Signaling Pathway protein-3, CCN6

Description:

WISP-3 is a member of the CCN family of secreted cysteine rich regulatory proteins. It is predominantly expressed in the adult kidney, testis, and fetal kidney, but it is also found with weaker expression in the placenta, ovary, prostate, small intestine, and skeletally-derived cells. WISP-3 is required for normal postnatal skeletal growth and cartilage homeostasis.

Research Areas:

Angiogenesis/Cardiovascular, Bone/Skeletal/Cartilage, Immune System

AA Sequence:

TGPLDTTPEG RPGEVSDAPQ RKQFCHWPCK CPQQKPRCPP GVSLVRDGC G CCKICAKQPG EICNEADLCD
PHKGLYCDYS VDRPRYETGV CAYLVAVGCE FNQVHYHNGQ VFQPNPLFSC LCVSGAIGCT PLFIPKLAGS
HCSGAKGGKK SDQSNCSELP LLQQLSTSYK TMPAYRNLPL IWKKKCLVQA TKWTPCSRTC GMGISNRVTN
ENSNCSEMRKE KRLCYIQPCD SNILKTIKIP KGKTCQPTFQ LSKAEKFVFS GCSSTQSYKP TFCGICLDR
CCIPNKSAMI TIQFDCPNEG SFKWKMLWIT SCVCQRNCRE PGDIFSELKI L

Estimated pI:

9.75

Accession #: O95389

NCBI Gene ID:

8838

Product Name	Catalog Number	MW	AA
Recombinant Human WISP-3	120-20	36.8 kDa	331

Wnt-1

Synonyms:	INT-1, Wnt-1 proto-oncogene protein (precursor)		
Description:	Wnt-1 is a secreted protein that signals through the Frizzled family of cell surface receptors, and is required for normal embryonic development. Wnt-1 activation induces a complex signaling cascade that ultimately leads to the increased expression of over fifty genes. An important component of Wnt-1 signaling is the stabilization, and resulting accumulation, of the intracellular signaling protein, β -catenin. Wnt signaling induces and maintains the transformed phenotype, and, in certain embryonic cell lines, supports self-renewal in the absence of significant differentiation. Elevated levels of Wnt proteins are associated with tumorigenesis, and are present in numerous human breast cancers. Mature human Wnt-1 is a glycosylated protein containing 343 amino acid residues.		
Research Areas:	Cancer, Immune System, Inflammation, Neurobiology, Stem Cells & Differentiation		
AA Sequence:	ANSSGRWWGI VNVASSTNLL TDSKSLQLVL EPSLQLLSRK QRRLIRQNPG ILHSVSGGLQ SAVRECKWQF RNRRWNCPTA PGPFLFGKIV NRGCRETAFI FAITSAGVTH SVARSCSEGS IESCTCDYRR RGPGGPDWHW GGCSDNIDFG RLFGREFVDS GEKGRDLRFL MNLHNNEAGR TTVFSEMRQE CKCHGMSGSC TVRTCWMRLP TLRAVGDVLR DRFDGASRVL YGNRGSNRAS RAELLRLEPE DPAHKPPSPH DLVYFEKSPN FCTYSGR LGT AGTAGRACNS SSPALDGCEL LCCGRGHRTR TQRVTERCNC TFHWCCHVSC RNCTHTRVLH ECL		
Estimated pI:	11.66	Accession #: P04628	
NCBI Gene ID:	7471		

Product Name	Catalog Number	MW	AA
Recombinant Human Wnt-1	120-17	38.4 kDa	343

Wnt-3a

Synonyms:	Wingless-type MMTV (Mouse Mammary Tumor Virus) integration site family member 3a
Description:	Wnt-3a belongs to the Wnt family of signaling proteins that play a key role in maintaining the integrity of embryonic and adult tissues. Expression of Wnt-3a occurs primarily along the dorsal midline across overlapping regions of the Central Nervous System (CNS). Wnt-3a signaling is essential for various morphogenetic events, including embryonic patterning, cell determination, cell proliferation, CNS development, and cytoskeletal formation. Like other members of this family, Wnt-3a contains a highly conserved lipid-modified, cysteine-rich domain that is essential for cell signaling. During a biochemical process called the canonical Wnt pathway, Wnt family members bind to and activate, seven-pass transmembrane receptors of the Frizzled family, ultimately leading to the disruption of β -catenin degradation. Intracellular accumulation of β -catenin increases translocation of the protein into the nucleus, where it binds to TCF/LEF transcription factors to promote gene expression. Lack of Wnt signaling disrupts transcriptional activation of tumor suppressor genes, and has been shown to result in neoplastic transformation, oncogenesis, and human degenerative diseases.
Research Areas:	Bone/Skeletal/Cartilage, Cancer, Immune System, Neurobiology, Stem Cells & Differentiation
AA Sequence:	SYPIWWSLAV GPQYSSLSTQ PILCASIPGL VPKQLRFCRN YVEIMPSVAE GVKAGIQECQ HQFRGRRWNC TTVSNSLAIF GPVLDKATRE SAFVHAIASA GVAFVTRSC AEGSAAICGC SSRLQGSPGE GWKWGGCSED IEFGGMVSRE FADARENRPD ARSAMNRHNN EAGRQAIASH MHLKCKCHGL SGSCVKTCTW WSQPDFRTIG DFLKDKYDSA SEMVVEKHRE SRGWVETLRP RYTYFKVPTE RDLVYYEASP NFCEPNPETG SFGTRDRTCN VSSHGIDGCD LLCCGRGHNA RTERRREKCH CVFHWCCYVS CQECTRVYDV HTCK
Estimated pI:	9.44
NCBI Gene ID:	22416
	Accession #: P27467

Product Name	Catalog Number	MW	AA
Recombinant Murine Wnt-3a	315-20	37.4 kDa	334

Wnt-7a

Synonyms:	None	
Description:	Wnt-7a belongs to the Wnt family of signaling proteins that play a key role in maintaining the integrity of embryonic and adult tissues. It is expressed in placenta, kidney, testis, uterus, fetal lung, and fetal and adult brain. Most Wnt proteins can signal through a mechanism called the canonical Wnt pathway, in which Wnt proteins bind to and activate seven-pass transmembrane receptors of the Frizzled family, ultimately leading to the disruption of β -catenin degradation. Intracellular accumulation of β -catenin increases translocation of the protein into the nucleus, where it binds to TCF/LEF transcription factors to induce the expression of numerous genes. Increased Wnt/ β -catenin signaling is associated with tumorigenesis in a diverse set of human cancers. However, Wnt-7a/Frizzled-9 signaling has been shown to act as a tumor suppressor in non-small cell lung cancers.	
Research Areas:	Cancer, Immune System, Inflammation, Stem Cells & Differentiation	
AA Sequence:	LGASIIICNKI PGLAPRQRAI CQSRPDAIIV IGEQSQMGLD ECQFQFRNGR WNCSALGERT VFGKELKVGS REAAFTYAI AAGVAHAITA ACTQGNLSDC GCDKEKQGQY HRDEGWKWGG CSADIRYGIG FAKVFVDARE IKQNARTLMN LHNNEAGRKI LEENMKLECK CHGVSGSCTT KTCWTTLPQF RELGYVLKDK YNEAVHVEPV RASRNKRPTF LKIKKPLSYR KPMDTDLVYI EKSPNYCEED PVTGSVGTQG RACNKTAPQA SGCDLMCCGR GYNTHQYARV WQCNCKFHWC CYVKCNTCSE RTEMYTCK	
Estimated pI:	9.59	Accession #: O00755
NCBI Gene ID:	7476	

Product Name	Catalog Number	MW	AA
Recombinant Human Wnt-7a	120-31	35.5 kDa	318

Wnt-9b

Synonyms:

WNT15, WNT14B, UNQ6973/PRO21956

Description:

Formerly known as Wnt-15 or Wnt-14b, Wnt-9b is a secreted glycoprotein belonging to the Wnt family of signaling proteins that are critically involved in maintaining the integrity of both embryonic and adult tissues. Wnt-9b is primarily expressed in adult kidneys and during late embryogenesis, and shares with other Wnt family members the same highly conserved lipid modified, cysteine-rich domain essential for cell signaling. As is true for most Wnt family members, Wnt-9b functions through the biochemical process known as the canonical Wnt pathway. In this process, Wnt proteins bind to and activate seven-pass transmembrane receptors of the Frizzled family, and ultimately result in the disruption of β -catenin degradation. Intracellular accumulation of β -catenin increases translocation of the protein into the nucleus, where it binds to TCF/LEF transcription factors to promote the expression of numerous genes. In this manner, Wnt signaling induces and maintains transformed phenotype, and, in certain embryonic cell lines, supports self-renewal in the absence of significant differentiation. While increased Wnt/ β -catenin signaling is associated with tumorigenesis in a diverse set of human cancers, lack of Wnt signaling disrupts transcriptional activation of tumor suppressor genes, and has been shown to result in neoplastic transformation, oncogenesis, and human degenerative diseases. Altered Wnt-9b expression has been shown to result in the underdevelopment of the kidneys, and incomplete lip and cleft fusion in mice.

Research Areas:

Bone/Skeletal/Cartilage, Cancer, Inflammation, Neurobiology, Stem Cells & Differentiation

AA Sequence:

SYFGLTGREV LTPFPGLGTA AAPAQGGAHL KQCDLLKLSR RQKQLCRREP GLAETLRDAA HLGLLCQFQ
FRHERWNCSL EGRMGLLKRG FKETAFLYAV SSAALHTHTLA RACSAGRMER CTCDDSPGLE SRQAWQWGVC
GDNLYSTKF LSNFLGSKRG NKDLRARADA HNTHVGIKAV KSGLRITCKC HGVSGSCAVR TCWKQLSPFR
ETGQVLKLRV DSAVKVSSAT NEALGRLELW APARQGSITK GLAPRSGDLV YMEDSPSFGR PSKYSPGTAG
RVCSREASCS SLCCGRGYDT QSRLVAFSCH CQVQWCCYVE CQQCVQEELV YTCKH

Estimated pI:

9.41

Accession #:

O14905

NCBI Gene ID:

7484

Product Name	Catalog Number	MW	AA
Recombinant Human Wnt-9b	120-49	36.9 kDa	335

References

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Activin B
Adiponectin
- Aeromonas Aminopeptidase**
AITRL
ANG-1
ANG-2
ANGPTL-7
- ApoA-I**
ApoE2, E3 & E4
Apo-SAA
Apo-SAA1
APRIL
Artemin
4-1BB Ligand
4-1BB Receptor
B7-1 Fc, B7-2 Fc
B7-H2 Fc
- BAFF**
BAFF Receptor
BCA-1/BLC (CXCL13)
BCMA
BD-1, -2, -3, -4, -5
BDNF
BRAK
BTLA Fc
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TL-1A

TLR-3

TLR-4

TMIGD2/CD28H Fc

TNF-α

TNF-β

sTNF Receptor Type I

sTNF Receptor Type II

TPO

sTRAIL/Apo2L

sTRAIL Receptors

TREM-1 Fc

TSG

TSLP

TWEAK

TWEAK Receptor

Uteroglobulin

VCAM-1

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Chemokine Nomenclature

Systematic Name CXC Chemokines	Functional Name(s) (mouse protein)	Responding Cell Type(s) (mouse protein)	Known Receptor(s)
CXC Chemokines			
CXCL1	GRO1, GRO- α , MGSA, NAP-3 (KC)	PMN	CXCR1, CXCR2
CXCL2	GRO2, GRO- β , MIP2- α (MIP-2)	PMN	CXCR1, CXCR2
CXCL3	GRO3, GRO- γ , MIP2- β (DCIP-1)	PMN	CXCR2
CXCL4	PF-4, Oncostatin-A	PMN, Mo	CXCR3B
CXCL5	ENA-78	PMN	CXCR2
CXCL6	GCP-2, CKA-3 (LIX)	PMN	CXCR1, CXCR2
CXCL7	NAP-2, PBP, LDGF, MDGF	PMN	CXCR1, CXCR2
CXCL8	IL-8, GCP-1, NAP-1	PMN, Bs	CXCR1, CXCR2
CXCL9	MIG	actT [Th1], NK	CXCR3
CXCL10	IP-10 (CRG-2)	Mo, actT [Th1], NK	CXCR3
CXCL11	I-TAC, IP-9	actT [Th1], NK	CXCR3, CXCR7
CXCL12	SDF-1, SDF-1 α/β , PBSF	All cell types	CXCR4, CXCR7
CXCL13	BCA-1, BLC	B, (Mo)	CXCR5
CXCL14	BRAK, MIP-2G	PMN, mDC (B, Mo)	unknown
CXCL15	(Lungkine)	(PMN)	unknown
CXCL16	SR-PSOX	actT	CXCR6
CXCL17	VEGF co-regulated chemokine 1, DMC	Mo, iDC	unknown
C Chemokines			
XCL1	Lymphotactin, ATAC, SCM-1	Tr	XCR1
XCL2	SCM-1 β	Tr	XCR1
CX3C Chemokines			
CX3CL1	Fractalkine, Neurotactin, CX3C	Mo, actT, NK	CX3CR1
CC Chemokines			
CCL1	I-309 (TCA-3)	iDC, actT [Th2], Mo (PMN)	CCR8
CCL2	MCP-1, MCAF, JE	Bs, Mo, actT, NK, iDC	CCR2, CCR4
CCL3	MIP-1 α , LD78 α	Eo, Mo, actT, NK, iDC (PMN)	CCR1, CCR4, CCR5
CCL3L1	LD78 β	Mo, actT, B	CCR1, CCR3, CCR5
CCL4	MIP-1 β , LAG-1	Mo, actT [Th1], NK, iDC	CCR5
CCL4L1	LAG-1 gene duplication	Mo	CCR1, CCR5
CCL5	RANTES	Eo, Bs, Mo, actT, NK, iDC, Tm	CCR1, CCR3, CCR4, CCR5
CCL6	(C-10)	(Mo)	CCR1
CCL7	MCP-3 (FIC)	Eo, Bs, Mo, actT, NK, iDC	CCR1, CCR2, CCR3
CCL8	MCP-2	Eo, Bs, Mo, actT, NK, iDC	CCR1, CCR2B, CCR3, CCR5
CCL9/10	(MIP-1 γ , MRP-2)	(PMN, actT)	CCR1
CCL11	Eotaxin	Eo, Bs, actT [Th2], iDC	CCR3
CCL12	(MCP-5)	(Eo, Bs, Mo, actT, NK, iDC)	CCR2
CCL13	MCP-4, CK β -10	Eo, Bs, Mo, actT, NK, iDC	CCR1, CCR2, CCR3
CCL14	HCC-1	Eo, Mo, T	CCR1, CCR3, CCR5
CCL15	MIP-5, MIP-18, HCC-2, LKN-1	Mo, T	CCR1, CCR3
CCL16	LEC, HCC-4	Mo, actT [Th1]	CCR1
CCL17	TARC (ABCD-2)	actT [Th2]	CCR4
CCL18	MIP-4, DC-CK1, PARC, AMAC-1	Tr, iDC	unknown
CCL19	MIP-3 β , ELC, Exodus-3, CK β -11	Tr, actT, mDC	CCR7
CCL20	MIP-3 α , LARC, Exodus-1	Tm, B, iDC, PMN	CCR6
CCL21	Exodus-2, 6Ckine, SLC	Tr, actT, mDC	CCR7
CCL22	MDC, STCP-1 (ABCD-1)	Mo, actT [Th2], NK, iDC	CCR4
CCL23	MIP-3, MPIF-1, CK β -8	PMN, Mo, Tr	CCR1
CCL24	Eotaxin-2, MPIF-2, CK β -6	Eo, Bs, actT [Th2], iDC, PMN, Tr	CCR3
CCL25	TECK	Thymocytes, Tr, iDC	CCR9
CCL26	MIP-4 α , Eotaxin-3	Eo, Bs, actT [Th2], iDC	CCR3
CCL27	CTACK, ILC, Eskine	actT	CCR10
CCL28	MEC	actT, Tr, Eo	CCR3, CCR10

KEY
Tm = memory T cells
B = B-cells
actT = activated T cell
Bs = Basophil
Tr = resting T cell
T = T cells
Eo = Eosinophil
NK = Natural Killer cells
Mo = monocyte
PMN = neutrophils
mDC = mature dendritic cells
iDC = immature dendritic cells

FGF Superfamily

Fibroblast Growth Factors	Target Cells (Partial list)	Receptors	Function (Partial list)
FGF1 (Acidic FGF) Heparin-Binding Growth Factor-1 (HBGF-1) ECGF-beta (Endothelial Cell Growth Factor-beta)	mesenchymal, neuroectodermal endothelial cells	all FGF receptors	Angiogenic <i>in vivo</i> , mitogenic <i>in vitro</i> , wound healing
FGF2 (Basic FGF) Heparin-Binding Growth Factor-2 (HBGF-2) Prostatropin	mesenchymal, neuroectodermal endothelial cells	1b, 1c, 2c, 3c, 4	Vasculogenesis, wound healing, angiogenesis, hematopoiesis, neuron survival
FGF3 int-2	epithelial cells that express FGF receptor 2b	2b	Mesoderm induction, angiogenesis, inner ear development
FGF4 Heparin Secretory Transforming protein (HST-1), Transforming protein KS3, Heparin-Binding Growth Factor-4 (HBGF-4)	cells that express FGF receptors	1c, 2c, 3c, 4	Angiogenesis, vertebrate limb development and development of stomach cancer
FGF5 Heparin-Binding Growth Factor-5 (HBGF-5), Smag-82	cells that express FGF receptors	1c, 2c	Hair growth and development
FGF6 Heparin-Binding Growth Factor-6 (HBGF-6) HST-2	cells that express FGF receptors	1c, 2c, 4	Skeletal muscle development
FGF7/KGF (Keratinocyte Growth Factor) Heparin-Binding Growth Factor-7 (HBGF-7)	keratinocytes and epithelial cells that express FGF receptor 2b	2b	Keratinocyte growth factor, kidney and lung development, angiogenesis and wound healing
FGF8 Androgen-Induced Growth Factor (AIGF), Heparin-Binding Growth Factor-8 (HBGF-8)	mammary carinoma cells and other cells that express FGF receptors	2c, 3c, 4 (possibly 1c)	Limb, central nervous system, cardiac outflow tract development
FGF9 Glia Activating Factor (GAF), Heparin-Binding Growth Factor-9 (HBGF-9)	glial cells, astrocyte cells and other cells that express FGF receptors	1c, 2c, 3b, 3c, 4	Glia-activating factor, motor neuron survival, lung and testes development
FGF10 FGFA, Keratinocyte growth factor-2	epithelial cells that express FGF receptor 2b	2b	Wound healing, multi-organ including limb and lung development
FGF11 FGFB, Fibroblast growth factor Homologous Factor-3 (FHF-3)	nuclear processes unrelated to the secreted FGFs	none	Appears to be involved in nervous system development and function
FGF12 FGFC, Fibroblast growth factor Homologous Factor-1 (FHF-1)	nuclear processes unrelated to the secreted FGFs	none	Appears to be involved in nervous system development and function
FGF13 FGFD, Fibroblast growth factor Homologous Factor-2 (FHF-2)	nuclear processes unrelated to the secreted FGFs	none	Appears to be involved in nervous system development and function
FGF14 FGFE, Fibroblast growth factor Homologous Factor-4 (FHF-4)	nuclear processes unrelated to the secreted FGFs	none	Regulates central nervous system development and function
FGF15 FGFF, identified in mouse not human	cells that express FGF receptor 4	4	Regulator of cell division and patterning in specific regions of embryonic brain, spinal cord and sensory organs
FGF16 FGFG	cells that express FGF receptors	2c, 3c	Central nervous system development
FGF17 FGFH	cells that express FGF receptors	1c, 2c, 3c, 4	Signals induction and patterning of embryonic brain
FGF18 zFGF5, FGFI	cells that express FGF receptors	1c, 2c, 3c, 4	An essential regulator of long bone and calvarial development
FGF19 FGFJ, identified in human not mouse	cells that express FGF receptor 4	4	Expressed during brain development and during embryogenesis, regulates multiple metabolic processes in adulthood
FGF20 FGFK	epithelial and mesenchymal cells	1c, 2c, 3c	Expressed during limb and brain development
FGF21 FGFL	unknown at the time of printing	unknown at the time of printing	Expressed in liver and thymus, may play a role in Type 2 Diabetes
FGF22 FGFM	hair follicle keratinocytes	unknown at the time of printing	May be involved in cutaneous development and repair, and hair development
FGF23 FGFN	renal proxima epithelial cells	3c	Expressed in brain and thymus, regulates phosphate homeostasis, mutant in hypo- phosphatemic rickets, regulates multiple metabolic processes in adulthood

TGF- β Superfamily

Name	Synonyms	Main Function	Natural Antagonists/ Binding Proteins
TGF-β_1	Differentiation inhibiting factor, cartilage-inducing factor	Regulates cell proliferation, growth, differentiation and motility. Involved in adipogenesis, chondrogenesis, embryogenesis, tissue remodeling, wound healing and tumor formation.	Follistatin, Follistatin-Like Related Gene (FLRG), Decorin, alpha-2 macroglobulin
TGF-β_2	Glioblastoma-derived T-cell suppressor factor, BSC-1, Cetermin, Polyergin	Regulates cell proliferation, growth, differentiation and motility. Involved in adipogenesis, chondrogenesis, embryogenesis, tissue remodeling, wound healing and tumor formation.	Decorin, alpha-2 macroglobulin
TGF-β_3	None	Regulates cell proliferation, growth, differentiation and motility. Involved in adipogenesis, chondrogenesis, embryogenesis, tissue remodeling, wound healing and tumor formation.	
TGF-β_4	Endometrial Bleeding Associated Factor beta-4, (EBAF) Lefty preproprotein, LEFTA	Essential for left-right (L-R) asymmetry determination of organ systems. Possible role in endometrial bleeding.	
Inhibin A	Inhibin alpha & beta A	Inhibits secretion of follitropin by the pituitary gland, regulates embryogenesis, osteogenesis, hematopoiesis, reproductive physiology and hormone secretion from the hypothalamic, pituitary and gonadal glands.	
Inhibin B	Inhibin alpha & beta B	Inhibits secretion of follitropin by the pituitary gland, regulates embryogenesis, osteogenesis, hematopoiesis, reproductive physiology and hormone secretion from the hypothalamic, pituitary and gonadal glands.	
Activin A	Activin beta-A, Inhibin beta-1, FRP (Follicle-stimulating hormone-Releasing Protein), FSH-releasing extra protein, FSH-releasing factor, EDF (Erythroid Differentiation Factor)	Regulates embryogenesis, osteogenesis, hematopoiesis, reproductive physiology and hormone secretion from the hypothalamic, pituitary and gonadal glands.	Follistatin, Follistatin-Like Related Gene (FLRG), GASP-1, Cerberus, alpha2 macroglobulin, DAN
Activin AB	Activin beta A & beta B	Regulates embryogenesis, osteogenesis, hematopoiesis, reproductive physiology and hormone secretion from the hypothalamic, pituitary and gonadal glands.	
Activin B	Activin beta-B, Inhibin beta-2	Regulates embryogenesis, osteogenesis, hematopoiesis, reproductive physiology and hormone secretion from the hypothalamic, pituitary and gonadal glands.	
Activin C	Activin beta-C, Inhibin beta-C, blastocyst B1	Regulates embryogenesis, osteogenesis, hematopoiesis, reproductive physiology and hormone secretion from the hypothalamic, pituitary and gonadal glands.	
Activin E	Activin beta-E, Inhibin beta-E	Regulates embryogenesis, osteogenesis, hematopoiesis, reproductive physiology and hormone secretion from the hypothalamic, pituitary and gonadal glands.	
BMP-2	BMP-2A	Induces cartilage and bone formation, plays a role in cardiac morphogenesis.	Noggin, Chordin, Follistatin, Follistatin-Like Related Gene (FLRG), GASP-1, DAN, Cerberus, Gremlin
BMP-3	Osteogenin, BMP-3A	Induces cartilage and bone formation.	
BMP-3B	GDF-10	Biological function unknown, but may play a role in differentiation of osteoblasts, augmenting BMP-2 activity.	
BMP-4	BMP2B (BMP2B1, BMP2B2, Bmp2-rs1), DVR4	Induces cartilage and bone formation, involved in mesoderm induction, tooth development, limb DAN, formation and fracture repair.	Noggin, Chordin, Chordin-like/Neuralin/Ventropin, Follistatin, Cerberus, Gremlin
BMP-5	None	Induces cartilage and bone formation.	Noggin, Chordin-like/Neuralin/Ventropin, Sclerostin/SOST
BMP-6	VGR, Vg-1-related protein	Induces cartilage and bone formation.	Noggin, Chordin-like/Neuralin/Ventropin, Follistatin, Follistatin-Like Related Gene (FLRG), Sclerostin/SOST
BMP-7	OP-1 (Osteogenic Protein-1)	Induces cartilage and bone formation, involved in calcium regulation and bone homeostasis. May act as an osteoinductive factor responsible for epithelial osteogenesis.	Noggin, Chordin, Follistatin-Like Related Gene (FLRG), DAN, Cerberus, Sclerostin/SOST
BMP-8	BMP-8a, OP-2 (Osteogenic Protein-2)	Induces cartilage and bone formation, involved in calcium regulation and bone homeostasis. May act as an osteoinductive factor responsible for epithelial osteogenesis.	
BMP-8b	OP-2 (Osteogenic Protein-2)	Stimulates cartilage and bone formation, implicated in calcium regulation and bone homeostasis.	
BMP-9	GDF-2	May be involved in bone formation, regulates blood glucose homeostasis, potential autocrine/paracrine mediator in the hepatic reticuloendothelial system, involved in chondrogenesis.	

Continued on next page...

TGF- β Superfamily *continued*

Name	Synonyms	Main Function	Natural Antagonists/Binding Proteins
BMP-10	None	Plays a crucial role in trabeculation of the embryonic heart.	
BMP-11	GDF-11	Involved in the patterning of both mesodermal and neural tissues and in establishing the skeletal muscle. Acts globally to specific positional identity along the anterior/posterior axis.	Follistatin, Follistatin-like related gene (FLRG), GASP-1
BMP-12	GDF-7, CDMP-3	Induces the formation of tendon and ligament tissues.	
BMP-13	GDF-6, CDMP-2	Plays a role in cartilage homeostasis, involved in embryonic skeletal development, and formation of a tendon-like tissue.	Noggin
BMP-14	GDF-5, CDMP-1	Essential for limb cartilage and limb-joint formation in developing mice. Involved in embryonic skeletal development.	Noggin, DAN
BMP-15	GDF-9B	An oocyte-specific factor that regulates granulosa cell proliferation and differentiation, and is essential for normal follicular growth.	
GDF-1	Embryonic growth/differentiation factor	May be involved in mediating cell differentiation events during embryonic development.	
GDF-2	BMP-9	Implicated in bone formation.	
GDF-3	Vgr-2	Embryonal carcinoma stem cell-associated marker <i>in vitro</i> and <i>in vivo</i> .	
GDF-5	CDMP-1, BMP-14	Essential for limb cartilage and limb-joint formation in developing mice. Involved in embryonic skeletal development.	Noggin, DAN
GDF-6	BMP-13, CDMP-2	Plays a role in cartilage homeostasis involved in embryonic skeletal development and formation of a tendon-like tissue.	Noggin
GDF-7	BMP-12, CDMP-3	Induces the formation of tendon and ligament tissues.	
GDF-8	Myostatin	Regulates skeletal muscle mass.	Follistatin, Follistatin-Like Related Gene (FLRG), GASP-1
GDF-9	None	Essential for normal follicular growth.	
GDF-10	BMP-3B, BIP (Bone Inducing Protein)	Biological function unknown, but may play a role in differentiation of osteoblasts, augmenting BMP-2 activity.	
GDF-11	BMP-11	Involved in the patterning of both mesodermal and neural tissues and in establishing the skeletal muscle. Acts globally to specific positional identity along the anterior/posterior axis.	Follistatin, Follistatin-Like Related Gene (FLRG), GASP-1
GDF-15	PLAB, Placental TGF β , Prostate Differentiation Factor (PDF), NRG-1, MIC-1 (Macrophage Inhibiting Cytokine-1)	Possible mediator of placental control of embryonic development, may act as an autocrine regulatory molecule.	
GDNF	ATF (Astrocyte-derived Trophic Factor)	Promotes dopamine uptake and survival and morphological differentiation of midbrain neurons.	
Artemin	ART, ARTN, Enovin, Neublastin	Supports the survival of all peripheral ganglia such as sympathetic, neural crest and placodally-derived sensory neurons, and dopaminergic midbrain neurons.	
Neurturin	NTN, NRTN	Promotes the development and survival of sympathetic and sensory neurons.	
Persephin	PSP, PSPN	Promotes the survival of ventral midbrain dopaminergic neurons and motor neurons, and promotes ureteric bud branching.	
LEFTY-1	LEFTYB, Protein Lefty B	Essential for left-right (L-R) asymmetry of organ systems.	
LEFTY-2	LEFTYA, TGF- β_4 , Protein Lefty A	Essential for left-right (L-R) asymmetry of organ systems.	
AMH (<i>anti-Muellerian Hormone</i>)	MIS, Muellerian inhibiting substance	Causes regression of the Muellerian duct, inhibits the growth of tumors derived from tissues of Muellerian duct origin.	
Dorsalin (<i>chick</i>)	Dorsalin-1, DSL-1	Regulates cell differentiation within neural tube.	
NODAL	None	Essential for mesoderm formation and subsequent organization of axial structures.	Cerberus

Neurotrophin/Neuropoietic Cytokines

Functional Name	Synonyms	Main Neurotrophic Functions (Partial List)	Disease/Disorder Relation (Partial List)	Receptors
β-NGF (beta-Nerve Growth Factor)	NGF-β	Supports survival and maintenance of neurons in the sensory and sympathetic nervous systems	Alzheimer's, Parkinson's, diabetic peripheral neuropathy, cardiovascular diseases	LNGFR, gp140/trk, p75NTR
BDNF (Brain Derived Neurotrophic Factor)	Abrineurin	Supports survival and maintenance of neurons in the central nervous system and peripheral nervous systems	Parkinson's, diabetic peripheral neuropathy, ALS, Huntington's	LNGFR, gp145/trkB, p75NTR
NNT-1/BCSF-3 (Novel Neurotrophin-1/ B-Cell Stimulating Factor-3)	Cardiotrophin-like cytokine (CLCF1)	Supports survival of motor and sympathetic neurons in chick embryos	Multifocal neuronal hypoplasia, neurodegenerative eye diseases (glaucoma), CISS (cold-induced sweating syndrome)	LIFR-β, gp130
NT-3 (Neurotrophin-3)	NGF-2, HGNF	Promotes growth and survival of new and existing neurons	Diabetic peripheral neuropathy, periodontal diseases	Trk, TrkB, TrkC, p75NTR
NT-4 (Neurotrophin-4)	NT-4/NT-5	Promotes survival of peripheral sensory sympathetic neurons	Huntington's, glaucoma	TrkB, p75NTR
GDNF (Glial-Derived Neurotrophic Factor)	ATF-1	Promotes dopamine uptake, survival and morphological differentiation of midbrain neurons	Parkinson's, ALS, Huntington's	RET/GFR1α-4α
MANF (Mesencephalic Astrocyte-Derived Neurotrophic Factor)	ARMET, Arginine-Rich Protein (ARP)	Promotes survival, growth and function of dopamine-specific neurons	Parkinson's, cancer	Unknown at time of printing
CDNF (Cerebral Dopamine Neurotrophic Factor)	ARMETL1	Promotes survival, growth and function of dopamine-specific neurons	Parkinson's	Unknown at time of printing
CNTF (Ciliary Neurotrophic Factor)	None	Promotes survival of ciliary neurons, primary sensory neurons, motor neurons, basal forebrain neurons, and type 2 astrocytes	ALS, Huntington's	CNTFR-α
IL-6 (Interleukin-6)	26 kDa protein, IFN-β2, B-cell Differentiation Factor (BCDF), BSF-2, HPGF, HSF, MGI-2	Involved in inflammation associated with Alzheimer's disease	Diabetes, atherosclerosis, Alzheimer's, depression, rheumatoid arthritis, systematic lupus, cancer, MS	IL-6Rα, gp130
Oncostatin M	OSM	Involved in the regulation of neurogenesis	Rheumatoid arthritis, atherosclerosis, cancer, TEL/JAK2 disease	LIFR-high affinity, gp130-low affinity
Cardiotrophin-1	CT-1	Enhances survival of different neuronal populations	Motor Neuron Diseases (MND), cardiovascular diseases	gp130, LIFR
IL-11 (Interleukin-11)	AGIF (Adipogenesis Inhibitory Factor)	Survival of oligodendrocytes, involved in inflammation associated with MS	Atherosclerosis, MS	IL-11Rα, gp130
LIF (Leukemia Inhibitory Factor)	Differentiation-stimulating factor, D-factor, Melanoma-Derived LPL inhibitor (MLPLI)	Promotes stimulation of differentiation of cholinergic nerves	Systemic lupus, cancer, epidermal hyperplasia in ALS	LIFR
Pleiotrophin	PTN, Heparin Affin Regulatory Protein (HARP), Heparin-Binding Growth Factor-8 (HBGF-8), Osteoblast-Specific Factor-1 (OSF-1)	Promotes neurite outgrowth	Angiogenesis, Parkinson's, cancer	ALK
Midkine	MK, NEGF-2	Promotes neurite outgrowth	Alzheimer's, cancer	ALK
Neurturin	NTN, NRTN	Promotes survival of sympathetic and sensory neurons	Parkinson's	Prefers RET/GFR2α
Artemin	ART, ARTN, Enovin, Neublastin	Promotes the survival of sympathetic, neural crest, placodally-derived sensory neurons, and dopaminergic midbrain neurons	Chronic Pain	Prefers RET/GFR3α
Persephin	PSP, PSPN	Promotes the survival of ventral midbrain dopaminergic neurons and motor neurons after sciatic nerve oxotomy	Alzheimer's	Prefers RET/GFR4α

TNF Nomenclature

TNF Superfamily – Ligands

Nomenclature Name	Functional Names
TNFSF1	TNF-β, Lymphotoxin-α (LT-α), TNFSF1B
TNFSF2	TNF-α, Cachectin, DIF, Necrosin, Cytotoxin, TNFSF1A
TNFSF3	Lymphotoxin-β (LT-β), TNF-C
TNFSF4	OX40 Ligand (OX40L), Gp34, TXGP1, CD252
TNFSF5	CD40 Ligand (CD40L), TRAP, Gp39, CD154, T-BAM
TNFSF6	Fas Ligand (FasL), APTL, APT1LG1, CD95L, CD178
TNFSF7	CD70, CD27 Ligand (CD27L, CD27LG)
TNFSF8	CD30 Ligand (CD30L, CD30LG), CD153
TNFSF9	4-1BB Ligand (4-1BBL), CD137L
TNFSF10	TRAIL, Apo2 Ligand (Apo2L), CD253
TNFSF11	RANK Ligand (RANKL), TRANCE, OPGL, ODF, CD254
TNFSF12	TWEAK, Apo3 Ligand (Apo3L), DR3LG
TNFSF13	APRIL, TALL-2, TRDL-1, CD256
TNFSF13B	BAFF, BlyS, TALL-1, CD257, TNFSF20, THANK, ZTNF4
TNFSF14	LIGHT, HVEM-Ligand (HVEM-L), CD258
TNFSF15	TL1A, TL1, VEGI
TNFSF18	AITR Ligand (AITRL), TL-6, GITR Ligand (GITRL)

TNF Superfamily – Receptors

Nomenclature Name	Functional Names
TNFRSF1A	TNF Receptor Type I (TNFR1), CD120a, p55, p60, TNFAR
TNFRSF1B	TNF Receptor Type II (TNFR2), CD120b, p75, p80
TNFRSF3	TNF Receptor Type III (TNFR3), Lymphotoxin-β Receptor, TNFR2-RP, TNFCR
TNFRSF4	OX40L Receptor, ACT35, TXGP1R, CD134
TNFRSF5	Bp50, CD40L Receptor, CDw40, CD40
TNFRSF6	FASLG Receptor, CD95, Apo-1
TNFRSF6B	DcR3, M68
TNFRSF7	CD27, CD27L Receptor, T14
TNFRSF8	CD30, CD30L Receptor, Ki-1
TNFRSF9	4-1BBL Receptor, CDw137, CD137, T-cell antigen ILA
TNFRSF10A	DR4, Apo2, TRAIL Receptor 1 (TRAILR1), CD261
TNFRSF10B	DR5, TRAIL Receptor 2 (TRAILR2), CD262, KILLER, TRICK2A, TRICKB
TNFRSF10C	DcR1, TRAIL Receptor 3 (TRAILR3), CD263
TNFRSF10D	DcR2, TRAIL Receptor 4 (TRAILR4), CD264
TNFRSF11A	RANK Receptor (RANKR), ODFR, CD265, ODAR, TRANCE Receptor
TNFRSF11B	Osteoprotegerin (OPG), OCIF, TR1
TNFRSF12	DR3, TNFRSF25, Apo3, AIR, TRAMP, LARD, WSL, WSL-1
TNFRSF13B	TACI, CD267
TNFRSF13C	BAFF Receptor (BAFFR), CD268, BlyS Receptor 3
TNFRSF14	HVEM, TR2, HveA, CD270, ATAR
TNFRSF16	NGF Receptor (NGFR), Gp80-LNGFR, p75NTR, p75 ICD, CD271
TNFRSF17	BCMA, CD269
TNFRSF18	AITR, GITR, CD357
TNFRSF19	TRADE
TNFRSF19L	RELT
TNFRSF21	DR6, CD358
TNFRSF22	SOBa, TNFRH2
TNFRSF23	SO, TNFRH1

VEGF/PDGF Family

Functional Name	Synonyms	Expression (Partial List)	Function	Receptors (Selected List)
VEGF-A ₁₂₁	Vascular Permeability Factor (VPF)	All vascularized tissues	Angiogenesis, induces endothelial cell proliferation, and cell migration, osteoclastogenesis	VEGFR-1,-2
VEGF-A ₁₄₅	Vascular Permeability Factor (VPF)	All vascularized tissues	Angiogenesis, induces endothelial cell proliferation, vasculogenesis, permeabilization of blood vessels, osteoclastogenesis	VEGFR-1,-2, HSPG, Neuropilin-1
VEGF-A ₁₆₅	Vascular Permeability Factor (VPF)	All vascularized tissues	Angiogenesis, induces endothelial cell proliferation, vasculogenesis, permeabilization of blood vessels, osteoclastogenesis	VEGFR-1,-2, HSPG, Neuropilin-1,-2
VEGF-A ₁₈₉	Vascular Permeability Factor (VPF)	All vascularized tissues	Angiogenesis, induces endothelial cell proliferation, migration	HSPG, Neuropilin-1,-2
VEGF-A ₂₀₆	Vascular Permeability Factor (VPF)	All vascularized tissues	Not determined at time of printing	HSPG, Neuropilin-1,-2
VEGF-B ₁₆₇	VEGF-Related Factor (VRF)	Heart, skeletal muscle, vascular smooth muscle cells	Embryonic angiogenesis	VEGFR-1, Neuropilin-1
VEGF-B ₁₈₆	VEGF-Related Factor (VRF)	Heart, skeletal muscle, vascular smooth muscle cells	Embryonic angiogenesis	VEGFR-1, Neuropilin-2
VEGF-C	VEGF-2, Vascular Endothelial Growth Factor Related protein (VRP), Flt4-Ligand	Neuroendocrine organs, lung, heart, kidney, vascular smooth muscle cells	Lymphangiogenesis and tumor angiogenesis	VEGFR-2,-3, Neuropilin-2
VEGF-D	c-Fos Induced Growth Factor (FIGF)	Neuroendocrine organs, lung, heart, skeletal muscle, small intestine, vascular smooth muscle cells	Lymphangiogenesis and tumor angiogenesis	VEGFR-2,-3
VEGF-E (Orf Virus)	None	Virus-derived	Induces endothelial proliferation, vascular permeability, angiogenesis	VEGFR-2, Neuropilin-1 (binds NZ2-VEGF-E variant)
VEGF-F (Snake venom)	None	Snake venom	Induces endothelial proliferation vascular permeability, angiogenesis	VEGFR-2
PIGF-1	Placenta Growth Factor-1, PGFL, PGF, PIGF	Placenta, thyroid, lung, goiter	Angiogenesis, chemotactic towards monocytes, wound healing and tumor formation	VEGFR-1
PIGF-2	Placenta Growth Factor-2, PGFL	Placenta, thyroid, lung, goiter	Angiogenesis, chemotactic towards monocytes, wound healing and tumor formation	VEGFR-1, Neuropilin-1, Neuropilin-2
PIGF-3	Placenta Growth Factor-3, PGFL	Placenta	Angiogenesis, chemotactic towards monocytes, wound healing and tumor formation	VEGFR-1
PIGF-4	Placenta Growth Factor-4, PGFL	Placenta, thyroid, lung, goiter	Angiogenesis, chemotactic towards monocytes, wound healing and tumor formation	VEGFR-1
PDGF-AA	Glioma-Derived Growth Factor (GDGF), Osteosarcoma-Derived Growth Factor (ODGF)	α-granules, released upon platelet activation	Mitogenic factor, hyperplasia, cell migration, embryonic neuron development, angiogenesis	PDGFR-α
PDGF-BB	Glioma-Derived Growth Factor (GDGF), Osteosarcoma-Derived Growth Factor (ODGF)	Heart, brain (substantia nigra), placenta, fetal kidney	Mitogenic factor, hyperplasia, cell migration, embryonic neuron development, angiogenesis	PDGFR-α, PDGFR-β
PDGF-AB	Glioma-Derived Growth Factor (GDGF), Osteosarcoma-Derived Growth Factor (ODGF)	α-granules, released upon platelet activation	Mitogenic factor, hyperplasia, cell migration, embryonic neuron development, angiogenesis	PDGFR-α, PDGFR-β
PDGF-CC	Fallotein, Spinal Cord-Derived Growth Factor (SCDGF)	Retinal pigment epithelia, fallopian tube, vascular smooth muscle cells in kidney, platelets, prostate, testis, uterus	Mitogenic factor, hyperplasia, cell migration, embryonic development, angiogenesis	PDGFR-α
PDGF-DD	Iris-Expressed Growth Factor (IEGF), Spinal Cord-Derived Growth Factor-B (SCDGF-B)	Heart, pancreas, adrenal gland, ovary, placenta, liver, kidney, prostate, testis, small intestine	Mitogenic factor, hyperplasia, cell migration, embryonic development, angiogenesis	PDGFR-β

Antagonists of TGF-β Ligands

Natural TGF-β Antagonists	Structural Features Contained in the Antagonist Polypeptide (M.W.)	Known TGF-β Binding Partners
Noggin	unique Noggin cysteine knot (26 kDa)	BMP-2, -4, -5, -6, -7, -13/GDF-6, -14/GDF-5
Chordin	4 CR/VWCC (Chordin) domains, 3 SOG repeats (102 kDa)	BMP-2, -4, -7
Chordin-like/Neuralin/Ventropitin	3 Chordin domains (51 kDa)	BMP-4, -5, -6
Follistatin	3 cysteine-rich Follistatin (FS) and 3 kazal domains (38 kDa)	Activin, BMP-2, -4, -6, -7, Myostatin/GDF-8, GDF-11, TGF-β ₁
Follistatin-like related gene (FLRG)	2 FS and 2 kazal domains (28 kDa)	Activin, BMP-6, -7, -11, Myostatin/GDF-8,
GASP-1	1 Wap, 1 FS, 1 kazal, 1 IG-like, 2 kunitz, 1 netrin domains (63 kDa)	Myostatin/GDF-8, GDF-11, Activin, BMP-11
Follistatin-related protein (FSRP)	1 FS, 1 CR/VWRC, 2 EF-hand domains (35 kDa)	Activin, BMP-2, -6, -7
DAN	unique DAN cysteine knot (19 kDa)	BMP-2, -4, -7, -14/GDF-5
Cerberus	DAN-like cysteine knot (30 kDa)	BMP-2, -4, -7, Activin, Nodal
Gremlin	DAN-like cysteine knot (21 kDa)	BMP-2, -4, -7
Sclerostin/SOST	unique Sclerostin cysteine knot (24 kDa)	BMP-5, -6, -7
Decorin	multiple leucine-rich repeats (40 kDa)	TGFβ-1, -2
alpha-2 macroglobulin	multiple proteinase inhibitor domains (163 kDa)	TGFβ-1, -2, Activin, Inhibin

General Characteristics of Plasma Lipoproteins

LP Particle	Size	Density (g/ml)*	TG/CE Ratio*	L/P Ratio*	Associated Apoproteins
CM	1000nm	<0.95	28.83	65.66	ApoB-48 , ApoA, ApoC, ApoE, ApoH
VLDL	70nm	0.98	3.89	10.76	ApoE , ApoB-100, ApoC
IDL	40nm	1.01	0.82	8.09	ApoE , ApoB-100, ApoC
LDL	20nm	1.04	0.18	3.76	ApoB-100 , ApoC, ApoE, Apo(a)
HDL	10nm	1.13	0.16	1.22	ApoA-I , ApoC, ApoD, ApoE

LEGEND: * Average values, TG-triglycerides, CE-cholesteryl esters, L/P- lipid/protein, **Bold** represents the major apoprotein

Classification of Apoproteins

Apoprotein	MW	Function and Comments
ApoA-I	29 kDa	Major protein of HDL, activates LCAT, high levels of ApoA-I are associated with a reduced risk of CHD.
ApoA-II	17.4 kDa	Primarily in HDL, inhibits hepatic lipase activity.
ApoA-IV	46 kDa	Present in fat-rich LPs.
ApoB-48	246 kDa	Derived from ApoB-100 gene by RNA editing, found exclusively in CMs, lack the LDLR binding domain of ApoB-100
ApoB-100	513 kDa	Major protein of LDL, binds to LDLR, high levels of ApoB-100 are associated with an increased risk of CAD.
ApoC-I	7.6 kDa	Appears to be involved in activation of LCAT.
ApoC-II	8.9 kDa	Activates LPL, deficiency of ApoC-II results in accumulation of CMs and high TG levels.
ApoC-III	8.75 kDa	Inhibits LPL.
ApoD	33 kDa	Found only in HDL, closely associated with LCAT.
ApoE	34 kDa	Three known ApoE alleles (E2, E3, E4). Binds to LDLR, inhibits development of atherosclerosis, ApoE4 is associated with late-onset Alzheimer's disease.

Index

α Klotho.....	201	APM-1 variant.....	107
β -NGF.....	247	Apo I.....	90
14 kDa lectin.....	108	Apo I Ligand.....	89
1-alkyl-2-acetyl glycerophosphocholine esterase.....	260	Apo2.....	325
26 kDa protein.....	161	Apo2 Ligand.....	324
2-acetyl-1-alkyl glycerophosphocholine esterase.....	260	Apo3 Ligand.....	329
4-1BB Ligand.....	23	ApoA-I.....	15
4-1BB Receptor.....	24	ApoE2.....	16
6Ckine.....	88	ApoE3.....	16
A Proliferation-Inducing Ligand.....	19	ApoE4.....	16
A8.....	59	Apolipoprotein A-I.....	15
ABCD-1.....	218	Apolipoprotein E2.....	16
ABCD-2.....	304	Apolipoprotein E3.....	16
Abrineurin.....	32	Apolipoprotein E4.....	16
ACH.....	98	Apo-SAA.....	17
Acrp-30.....	8	Apo-SAA1.....	18
ACT-2.....	202, 226	APRIL.....	19
Activation-Induced TNFR member Ligand.....	9	APT1LG1.....	89
Activation-inducible lymphocyte immunomediatory molecule (AILIM).....	139	APTL.....	89
Activin A.....	7	AR.....	10
Activin-binding protein.....	100	AREG.....	10
ADI.....	21	Arg-C.....	20
Adipolean (human).....	106	Arginine Deiminase.....	21
Adiponectin.....	8	Arginine-Rich Protein (ARP).....	212
AdipoQ.....	8	ARIA (Acetylcholine Receptor Inducing Activity).....	132
Adipose tissue-specific secretory factor.....	287	ARMD10.....	317
ADSF.....	287	ARMET.....	212
Aeromonas Aminopeptidase.....	6	ARMETL1.....	60
AGIF (Adipogenesis Inhibitory Factor).....	167	ART.....	22
AIGF.....	92	Artemin.....	22
AITRL.....	9	ARTN.....	22
Aldesleukin.....	155	ATAC.....	211
ALP.....	63	ATAR.....	136
Alpha Defensin-1.....	251	ATF (Astrocyte-derived Trophic Factor).....	119
Alpha-2-HS-glycoprotein.....	91	ATF-1.....	119
Alpha-2-Z-globulin.....	91	B- and T-lymphocyte attenuator.....	43
AMAC-1.....	232	B- and T-lymphocyte-associated protein.....	43
Amphiregulin.....	10	B7.....	25
Amyloid fibril protein AA.....	17	B7 homolog 2.....	26
ANG-1.....	11	B70.....	25
ANG-2.....	12	B7-1 Fc.....	25
ANG-5.....	13	B7-2 Fc.....	25
Angiopoietin-1.....	11	B7-H1 (B7 homolog 1).....	266
Angiopoietin-2.....	12	B7-H2 Fc.....	26
Angiopoietin-like protein 3.....	13	B7-like protein Gl50.....	26
Angiopoietin-like protein 7.....	14	B7-related protein 1 (B7RP-1).....	26
Angiopoietin-related protein 7.....	14	Ba-alpha-2-glycoprotein.....	91
ANGPT1.....	11	BAFF.....	27
ANGPT2.....	12	BAFF Receptor.....	28
ANGPT5.....	13	BAFFR.....	28
ANGPTL-3.....	13	BB1.....	25
ANGPTL-7.....	14	BB18.....	59
Antimicrobial peptide-57.....	124	BCA-1 (CXCL13).....	29
AOC3.....	332	BCA-1/BLC (CXCL13).....	29
AP-57.....	124	BCDF.....	158
APM-1.....	8, 106	BCDFII.....	160

Index

B-cell Activating Factor belonging to the TNF family.....	27	Bone Morphogenetic Protein-10.....	40
B-cell Attracting Chemokine-1.....	29	Bone Morphogenetic Protein-13.....	41
B-Cell Differentiation Factor (BCDF).....	161	Bone Morphogenetic Protein-14.....	115
B-Cell Maturation Antigen.....	30	Bone sialoprotein 1.....	256
B-cell Stimulating Factor (BSF-1).....	158	B-R1.....	197
B cell stimulatory factor-2.....	162	Brain-Derived Neurotrophic Factor.....	32
BCGF.....	158	BRAK (CXCL14).....	42
BCM.....	30	Breast and Kidney-expressed chemokine.....	42
BCMA.....	30	Breast cancer cell differentiation factor p45.....	132
BD-1 (36 a.a.).....	31	Breast Cancer Estrogen-Inducible protein (BCEI).....	306
BD-1 (47 a.a.).....	31	BSC-1.....	308
BD-2.....	31	BSF-2.....	161
BD-3.....	31	BTC.....	33
BD-4.....	31	B-TCGF.....	166
BD5.....	31	BTLA Fc.....	43
BD-5.....	31	Butyrophilin B7-DC.....	267
BDCA-3.....	309	C1 Esterase Protein.....	44
BDNF.....	32	C1 Inhibitor.....	44
BEK.....	97	C10 (CCL6).....	46
Betacellulin.....	33	C16orf77.....	187
Beta-Defensin 1.....	31	C1inh.....	44
Beta-Defensin 2.....	31	C1-inhibiting factor.....	44
Beta-Defensin 3.....	31	C3 and PZP-like alpha-2-macroglobulin domain-containing protein 4.....	45
Beta-Defensin 5.....	31	C5a.....	45
Beta-Defensin 104.....	31	Cachectin.....	319
Beta-galactoside-binding lectin L-14-I.....	108	CAK1 antigen.....	220, 237
beta-Nerve Growth Factor.....	247	Carboxypeptidase-B.....	47
BFGFR.....	97	Cardiotrophin-1.....	48
BLAST-2.....	53	Cardiotrophin-like cytokine.....	248
BL-CAM.....	52	Cardiotrophin-like cytokine factor 1 (CLCF1).....	248
BLR1 Ligand.....	29	Cartilage-Derived Morphogenetic Protein-1 (CDMP-1).....	115
B-Lymphocyte cell adhesion molecule.....	52	Cartilage-Derived Morphogenetic Protein-2 (CDMP-2).....	41
BLyS.....	27	Cartilage-Derived Retinoic Acid-sensitive Protein (CD-RAP).....	221
BLyS Receptor 3.....	28	Cartilage-inducing factor.....	308
BM-40.....	301	Catabolin.....	153
BMP-2.....	34	CC10.....	331
BMP-2A.....	34	CCF18.....	227
BMP-2B.....	36	CCK-1.....	219
BMP-3.....	35	CCL2.....	215
BMP-3A.....	35	CCL7.....	215
BMP-4.....	36	CCL8.....	215
BMP-5.....	37	CCL12.....	215
BMP-6.....	38	CCL13.....	215
BMP-7.....	39	CCN1.....	68
BMP-9.....	113	CCN2.....	64
BMP-10.....	40	CCN3.....	250
BMP-11.....	117	CCN4.....	342
BMP-12.....	116	CCN5.....	65
BMP-13/CDMP-2.....	41	CCN6.....	343
bolepine.....	42	CCBP.....	331
Bone Morphogenetic Protein-2.....	34	sCD4.....	49
Bone Morphogenetic Protein-3.....	35	sCD8 α	50
Bone Morphogenetic Protein-4.....	36	CD8A.....	50
Bone Morphogenetic Protein-5.....	37	sCD14.....	51
Bone Morphogenetic Protein-6.....	38	sCD22.....	52
Bone Morphogenetic Protein-7.....	39	sCD23.....	53

Index

CD23 antigen.....	53	CDK4I.....	259
CD25 antigen.....	156	CDNF.....	60
sCD27 Ligand.....	54	CDT6.....	14
sCD27L.....	54	CDw137.....	24
sCD28 Fc.....	55	CEK2.....	98
CD28 homolog.....	318	Cerebral Dopamine Neurotrophic Factor.....	60
sCD30 Ligand.....	56	Cetermin.....	308
CD30L.....	56	Chemerin.....	61
CD31 antigen.....	268	Chemokine-like protein TAFA-2.....	303
sCD34.....	57	Ciliary Neurotrophic Factor.....	62
sCD40 Ligand.....	58	CINC.....	128
CD54 antigen.....	138	CkB-6.....	82
CD62E.....	87	c-Kit Ligand.....	292
CD70.....	54	CKTSF1B1.....	126
CD80.....	25	Ck- β 8.....	229
CD86.....	25	Clara Cell Phospholipid-Binding Protein.....	331
CD95.....	90	Clara Cells 10 kDa secretory protein.....	331
CD95L.....	89	Cluster determinant 4.....	49
sCD100.....	59	c-MPL Ligand.....	323
CD106.....	334	CNTF.....	62
CD120a.....	321	Coagulation factor III.....	314
CD120b.....	322	COL18A1.....	79
CD124.....	159	colon cancer cell growth inhibitor.....	148
CD126.....	162	Colon-derived SUS2 binding factor.....	124
CD137.....	24	Colorectum cell-Derived Growth Factor (CRDGF).....	10
CD137L.....	23	Complement 5a.....	46
CD141.....	309	Complement Component 5a.....	46
CD142.....	314	Connective Tissue Growth Factor.....	64
CD152.....	66	Connective Tissue Growth Factor-Like protein.....	65
CD153.....	56	Copper Amine Oxidase.....	332
CD154.....	58	Cornea-derived transcript 6 protein.....	14
CD178.....	89	CPAMD4.....	45
CD252.....	258	Cpb1.....	47
CD253.....	324	CPB-35.....	109
CD254.....	279	CPG15.....	243
CD256.....	19	erg-2.....	195
CD257.....	27	CRP-1.....	139
CD258.....	208	Cryptdin.....	251
CD261.....	325	CSBF.....	124
CD262.....	325	CSC-21K.....	313
CD265.....	280	CSDD1.....	209
CD267.....	302	CSF-1.....	214
CD268.....	28	CSF-2.....	122
CD269.....	30	CSF-3.....	112
CD270.....	136	CSIF.....	166
CD272.....	43	CT-1.....	48
CD273.....	267	CT-58.....	65
CD274.....	266	CTACK (CCL27).....	63
CD275.....	26	CTAP-III (precursor).....	241
CD278.....	139	CTGF.....	64
CD279.....	263	CTGFL/WISP-2.....	65
CD283 antigen.....	316	CTL Maturation Factor (TCMF).....	168
CD284.....	317	CTLA-4 Fc.....	66
CD333.....	98	CTLA-8.....	173
CD354.....	326	Cutaneous T-cell Attracting Chemokine.....	63
CDD.....	294	CVID1.....	139

Index

CXCL1	128	ECGF-beta	92
CXCL2	128	EDF	160
CXCL3	128	EGF	74
CXCL16	67	EGF Receptor (EGFR)	75
Cyclin-Dependent Kinase 4 Inhibitor A	259	EGF-L7	76
Cyclin-Dependent Kinase Inhibitor 2A	259	EG-VEGF	77
CYR61	68	ELC	231
Cysteine-rich 61	68	ENA-78 (CXCL5) (5-78 a.a.)	78
Cysteine-rich secreted protein FIZZ1	284	ENA-78 (CXCL5) (8-78 a.a.)	78
Cysteine-rich secreted protein FIZZ2	285	EndoCAM	268
Cytokine ZCYTO10	179	Endocrine Gland-derived Vascular Endothelial Growth Factor	77
Cytokine ZCYTO18	181	Endogenous Pyrogen (EP)	152, 153
Cytokine ZCYTO7	174	Endoproteinase Lys/Arg-Arg	198
Cytotoxic Cell Protease 1 (CCP1)	125	Endostatin	79
Cytotoxic Lymphocyte Maturation Factor (CLMF)	168	Endothelial Leukocyte Adhesion Molecule 1 (ELAM1)	87
Cytotoxic Lymphocyte Maturation Factor 35 kDa subunit (CLMF p35)	168	Enovin	22
Cytotoxic Lymphocyte Maturation Factor 40 kDa subunit (CLMF p40)	168	Enterokinase	80
Cytotoxic T-lymphocyte-associated antigen 4	66	Eotaxin (CCL11)	81
Cytotoxin	319	Eotaxin-2 (CCL24)	82
D factor	207	Eotaxin-3 (CCL26)	83
DAND2	126	EPC-1	269
DAND6	294	EPG	84
DC-CK1	232	Epidermal Growth Factor	74
DDC-4 (rat homologue)	103	Epidermal Growth Factor-Like protein 7	76
DEFB1	31	Epigen	84
DEFB2	31	Epiregulin	85
DEFB3	31	Epithelial mitogen	84
DEFB4	31	Epithelial Neutrophil Activating Peptide-78	78
DEFB4A	31	EPO	86
DEFB5	31	Epoetin	86
DEFB103A	31	Epstein-Barr virus-induced gene 3 protein	184
DEFB105a	31	ErbB1	75
Delta-1	72	ERC	220
Delta-like protein 1	72	EREG	85
Delta-like protein 4	73	Erythroid Differentiation Factor (EDF)	7
Dickkopf-1	69	Erythroid-potentiating activity	312
Dickkopf-2	70	Erythropoietin	86
Dickkopf-3	71	E-Selectin	87
Dickkopf-related protein 1	69	Esquine	63
Dickkopf-related protein 2	70	ESPO-1	217
Dickkopf-related protein 3	71	ETC1	25
Differentiation inhibiting factor	308	ETGF	307
Differentiation-inducing factor (DIF)	319	Exodus-1	230
Differentiation-stimulating factor	207	Exodus-2 (CCL21)	88
Diphtheria Toxin Receptor (DTR)	130	Exodus-3	231
DKK-1	69	EZF	200
DKK-2	70	F3	314
DKK-3	71	factor III	314
DR3LG	329	Fallotein	265
DR4	325	FAM19A2	303
DR5	325	Fas Antigen	90
DRM	126	sFas Ligand	89
Drosophila Delta homolog 4	73	sFas Receptor	90
DVR4	36	Fc-epsilon-RII	53
EBI3	184	Fetuin A/AHSG	91
EBV-induced gene 3 protein	184	FGF-acidic	92

Index

FGF-basic.....	92	Fibroblast Interferon	140
FGF-basic (146 a.a.)	92	Fibronectin type III domain-containing protein 5 (FNDC5)	196
FGF-basic (154 a.a.)	92	Fibronectin type III repeat-containing protein 2 (FRCP2)	196
FGF-1.....	92	FIGF	338
FGF-2.....	92	FIL1 delta.....	192
FGF-4.....	92	FIL1E (FIL1E).....	189
FGF-5.....	92	FIZZ3	287
FGF-6.....	92	FKN.....	101
FGF-8a.....	92	Flt3L.....	99
FGF-8b.....	92	Flt3-Ligand	99
FGF-9.....	92	Flt4-Ligand	337
FGF-10.....	92	Fms-related tyrosine kinase 3 ligand	99
FGF-16.....	92	FN14	330
FGF-17.....	92	Folliculostellate cell-derived growth factor	335
FGF-18.....	92	Follistatin	100
FGF-19.....	92	Follistatin-like protein 1.....	104
FGF-20.....	92	Follistatin-related protein 1.....	104
FGF-21.....	92	Fractalkine (CX3CL1)	101
FGF-23.....	92	FRP.....	7, 104
FGFA.....	92	sFRP-1.....	102
FGF-binding protein 1	96	sFRP-4.....	103
FGF-BP.....	96	FS.....	100
FGF-BP-1.....	96	FSH (Follicle-Stimulating Hormone)-releasing protein	7
FGFG	92	FSL1	104
FGFH.....	92	FSTL1	104
FGFI.....	92	FUR.....	105
FGF-inducible 14.....	330	Furin.....	105
FGFJ.....	92	gAcrp30.....	106
FGFK	92	gAcrp30/Adipolean.....	106
FGFL.....	92	gAcrp30/Adipolean Variant	107
FGFN.....	92	gad.....	106
FGFR1a (IIIc) Fc	97	GAF (Glia-Activating Factor).....	92
FGFR2a (IIIc) Fc	97	Galactose-specific lectin-1	108
FGFR3 (IIIc) Fc	98	Galactose-specific lectin-3	109
Fibroblast Collagenase.....	234	Galaptin.....	108
Fibroblast collagenase inhibitor.....	312	Galectin-1.....	108
Fibroblast Growth Factor-acidic.....	92	Galectin-3.....	109
Fibroblast Growth Factor-basic	92	Gamma-Interferon Inducible Protein 10.....	195
Fibroblast Growth Factor-4.....	92	GASP	110
Fibroblast Growth Factor-5.....	92	GASP-1	110
Fibroblast Growth Factor-6.....	92	GBP-28	8
Fibroblast Growth Factor-7.....	199	GCP-2 (CXCL6)	111
Fibroblast Growth Factor-8.....	92	G-CSF	112
Fibroblast Growth Factor-9.....	92	GDF-2	113
Fibroblast Growth Factor-10.....	92	GDF-3	114
Fibroblast Growth Factor-16.....	92	GDF-5 (BMP-14/CDMP-1).....	115
Fibroblast Growth Factor-17.....	92	GDF-6	41
Fibroblast Growth Factor-18.....	92	GDF-7	116
Fibroblast Growth Factor-19.....	92	GDF-8	238
Fibroblast Growth Factor-20.....	92	GDF-11	117
Fibroblast Growth Factor-21.....	92	GDF-15/MIC-1	118
Fibroblast Growth Factor-23.....	92	GDF-Associated Serum Protein-1	110
Fibroblast growth factor binding protein 1	96	GDNF.....	119
Fibroblast Growth Factor Receptor 1 alpha.....	97	Gelatinase A.....	235
Fibroblast Growth Factor Receptor 2 alpha.....	97	Gelatin-binding protein.....	8
Fibroblast Growth Factor Receptor 3 alpha.....	98	GH.....	127

Index

GH-N.....	127	HBGF-6.....	92
GIF.....	224	HBGF-7.....	199
GIGI protein.....	68	HBGF-8.....	92
GITRL.....	9	HBGF-9.....	92
GKLF.....	200	HBp17.....	96
Glia Maturation Factor beta.....	123	HC14.....	215
glial growth factor.....	132	HC21.....	202
Glial-Derived Neurotrophic Factor.....	119	HCC-1 (CCL14) (66 a.a.).....	131
GLIF.....	224	HCC-1 (CCL14) (72 a.a.).....	131
Glioblastoma-derived T-cell suppressor factor.....	308	HCC-1/HCC-3.....	131
Glioma-derived endothelial cell mitogen.....	335	HCC-2.....	233
Glioma-Derived Growth Factor (GDGF).....	264	HCC-4.....	204
globular domain of Acrp30.....	106	HCGF.....	157
GLP-1.....	120	Hematopoietic progenitor cell antigen CD34.....	57
Glucagon-Like Peptide 1.....	120	Hematopoietic system regulatory peptide.....	310
Glycoprotein Gp34.....	258	Hematopoietin-1.....	152
Glycosylation-inhibiting factor.....	224	Hemofiltrate CC Chemokine-1.....	131
GM-CSF.....	122	Heparin Affin Regulatory Protein (HARP).....	272
GM-CSF beta.....	112	Heparin Binding EGF-like growth factor.....	130
GMFB.....	123	Heparin-Binding Growth Factor-8 (HBGF-8).....	272
GMF- β	123	Hepatocyte Growth Factor.....	133
Gp39.....	58	Hepatopoietin (HPTA).....	133
GPR15L.....	124	Heregulin β -1.....	132
GR3.....	59	HGF.....	133
Granulocyte Chemotactic Protein-2.....	111	HGNF.....	252
Granulocyte Colony-Stimulating Factor.....	112	Hhg-1.....	299
Granulocyte-Macrophage Colony-Stimulating Factor.....	122	Histidine-Proline-Rich Glycoprotein.....	135
Granzyme B.....	125	Histidine-rich glycoprotein (HRG).....	135
Gremlin-1.....	126	HNP-1.....	251
GRO/KC (CXCL1).....	128	HP1.A.....	306
GRO1.....	128	HPAO.....	332
GRO2.....	128	HPGF.....	161
GRO3.....	128	HPRG.....	135
Growth Hormone.....	127	HRG.....	132
Growth Hormone 1.....	127	HRG1- β 1.....	132
Growth Regulated Protein/Melanoma Growth Stimulatory Activity.....	128	HRGP.....	135
Growth/Differentiation Factor-2.....	113	HSF.....	161
Growth/Differentiation Factor-3.....	114	hSLE1.....	263
Growth/Differentiation Factor-5.....	115	HST-1.....	92
Growth/Differentiation Factor-7.....	116	HST-2.....	92
Growth/Differentiation Factor-11.....	117	HT29-IGF-BP.....	148
Growth/Differentiation Factor-15.....	118	HuB219.....	206
Growth-hormone-dependent binding protein.....	147	HveA.....	136
GRO- α /MGSA (CXCL1).....	128	HVEM.....	136
GRO- β (CXCL2).....	128	HVEM-Fc.....	136
GRO- β /MIP-2 (CXCL2).....	128	HVEM-L.....	208
GRO- γ (CXCL3).....	129	Hypertrophic chondrocyte-specific protein 24 (HCS24).....	64
H2 relaxin.....	282	I-309 (CCL1).....	137
H3 relaxin.....	283	IBP-1.....	145
HBD1.....	31	IBP-2.....	146
HBEGF.....	130	IBP-3.....	147
HB-EGF.....	130	IBP-4.....	148
HBGF-1.....	92	IBP-5.....	149
HBGF-2.....	92	IBP-6.....	150
HBGF-4.....	92	IBP-7.....	151
HBGF-5.....	92	ICAM-1.....	138

Index

ICIL-1RA.....	154	IL-8 (CXCL8) (72 a.a.).....	164
ICOS Fc.....	139	IL-8 (CXCL8) (77 a.a.).....	164
IFN alpha II-1.....	143	IL-9.....	165
IFNB1.....	140	IL-10.....	166
IFNW1.....	143	IL-10-inducible chemokine.....	204
IFN-β.....	140	IL-11.....	167
IFN-β2.....	161	IL-12 p40.....	168
IFN-γ.....	141	IL-12 p70.....	168
IFN-λ1.....	142	IL-12 p80.....	168
IFN-λ2.....	142	IL-12 subunit p35.....	168
IFN-ω.....	143	IL-12 subunit p40.....	168
IgE-binding protein.....	109	IL-12A.....	168
IGF-I.....	144	IL-12B.....	168
IGF-I LR3.....	144	IL-13.....	170
IGF-IA.....	144	IL-13 (109 a.a.).....	170
IGF-II.....	144	IL-13 (113 a.a.).....	170
IGF binding protein-related protein-1 (IGFBP-rP1).....	151	IL-13 Variant.....	170
IGF-BP1.....	145	IL-15.....	171
IGF-BP2.....	146	IL-16 (121 a.a.).....	172
IGF-BP3.....	147	IL-16 (129 a.a.).....	172
IGF-BP4.....	148	IL-17.....	173
IGF-BP5.....	149	IL-17A.....	173
IGF-BP6.....	150	IL-17B.....	174
IGF-BP7.....	151	IL-17D.....	175
IGFBP9.....	250	IL-17E.....	176
IHG-2.....	126	IL-17F.....	177
IL-1α.....	152	IL-19.....	178
IL-1β.....	153	IL-20.....	179
IL-1ε (epsilon).....	191	IL-21.....	180
IL-1ζ (zeta).....	193	IL-22.....	181
IL-1 delta.....	192	IL-23.....	182
IL-1 eta.....	190	IL-24.....	183
IL-1F5.....	192	IL-25.....	176
IL-1F7.....	193	IL-27.....	184
IL-1F8.....	190	IL-27-A.....	184
IL-1F9.....	191	IL-27B.....	184
IL-1 F11.....	186	IL-28A.....	142
IL-1H1.....	191	IL-29.....	142
IL-1H2.....	190	IL-30.....	184
IL-1H4.....	193	IL-31.....	185
IL-1HY1.....	192	IL-33.....	186
IL-1L1.....	192	IL-34.....	187
IL-1RA.....	154	IL-35.....	188
IL-1ra Homolog 1.....	192	IL36A.....	189
IL-1RN.....	154	IL-36A.....	192
IL-1RP3.....	192	IL-36α (IL-1F6).....	189
IL-2.....	155	IL-36β (IL-1F8).....	190
sIL-2 Receptor α.....	156	IL-36γ (IL-1F9).....	191
IL-3.....	157	IL-37 (IL-1F7).....	193
IL-3β.....	157	IL-T.....	171
IL-4.....	158	IL-TIF.....	181
sIL-4 Receptor α.....	159	Immune Interferon.....	141
IL-5.....	160	Immunoglobulin and proline-rich receptor 1 (IGPR-1).....	318
IL-6.....	161	INCAM-100.....	334
sIL-6 Receptor α.....	162	Inducible Costimulator-Ligand (ICOSL).....	26
IL-7.....	163	Inducible T-cell costimulator.....	139

Index

Inhibin beta-1	7	Interleukin-27 subunit beta	184
INSL5/INSL7 Hybrid	194	Interleukin-30	184
INSL7	283	Interleukin-31	185
Insulin-like Growth Factor-Binding Protein 1	145	Interleukin-33	186
Insulin-like Growth Factor-Binding Protein 2	146	Interleukin-34	187
Insulin-like Growth Factor-Binding Protein 3	147	Interleukin-35	188
Insulin-like Growth Factor-Binding Protein 4	148	Interleukin-36RA	192
Insulin-like Growth Factor-Binding Protein 5	149	Interleukin-36a	189
Insulin-like Growth Factor-Binding Protein 6	150	Interleukin-36b	190
Insulin-like Growth Factor-Binding Protein 7	151	Interleukin-36g	191
Insulin-like Growth Factor-I	144	Interleukin-37	193
Insulin-like Growth Factor-II	144	Interstitial Collagenase	234
Insulin-like peptide-7	283	Intestinal Trefoil Factor (ITF)	306
INT-1	344	IP-10 (CXCL10)	195
Intercellular Adhesion Molecule 1	138	IRAP	154
Interferon Inducible T-Cell α Chemokine	197	Irisin	196
Interleukin IL-16 receptor	49	Ironplact	271
Interleukin-1 family member 6 (IL-1F6)	189	I-TAC (CXCL11)	197
Interleukin-1a	152	JE (murine)	215
Interleukin-1b	153	JE/MCP-1 (CCL2)	215
Interleukin-1e (IL1E)	189	JTK4	98
Interleukin-1 Receptor Antagonist	154	KC (CXCL1)	128
Interleukin-2	155	Keratinocyte Growth Factor	199
Interleukin-3	157	Keratinocyte Growth Factor-2	92
Interleukin-3b	166	Kex-2	198
Interleukin-4	158	KGf (FGF-7)	199
Interleukin-5	160	KGFR	97
Interleukin-6	161	KIAA0003	11
Interleukin 6 family cytokine	207	KIAA0443	110
Interleukin-7	163	KILLER	325
Interleukin-8	164	KLA	201
Interleukin-9	165	KLF4	200
Interleukin-10	166	KLF4-TAT	200
Interleukin-11	167	Klotho	201
Interleukin-12	168	Kruppel-like Factor-4	200
Interleukin-12 subunit alpha	168	L-29	109
Interleukin-12 subunit beta	168	L3T4 (mouse)	49
Interleukin-13	170	LAG-1 (CCL4L1)	202
Interleukin-13 Variant	170	LARC	230
Interleukin-15	171	LCC-1	204
Interleukin-16	172	LCF (Lymphocyte Chemoattractant Factor)	172
Interleukin-16 receptor	49	LD78a	226
Interleukin 17	173	LD78b (CCL3L1)	203
Interleukin-17A	173	LDL-associated phospholipase A2	260
Interleukin-17B	174	LDL-PLA(2)	260
Interleukin-17D	175	LEC (CCL16)	204
Interleukin-17E	176	LEP-R	206
Interleukin-17F	177	Leptin	205
Interleukin-19	178	Leptin Receptor	206
Interleukin-20	179	Leu-3(a, b)	49
Interleukin-21	180	Leu-14	52
Interleukin-22	181	Leukemia Inhibitory Factor	207
Interleukin-23	182	Leukocyte Endogenous Mediator (LEM)	152, 153
Interleukin-24	183	LIF	207
Interleukin-27	184	LIGHT	208
Interleukin-27 subunit alpha	184	LIN28A	209

Index

Lin28-TAT	209	MEC (CCL28)	219
Liver-Expressed Chemokine	204	Megakaryocyte colony-stimulating factor	323
LIX (CXCL6) (70 a.a.)	111	MEGF7	76
LIX (CXCL6) (92 a.a.)	111	Melanoma differentiation-associated protein-like protein	178
Lkn-1	233	Melanoma Inhibitory Activity	221
LMC	204	Melanoma Inhibitory Activity-2	222
Long R3 IGF-I	144	Melanoma-derived LPL inhibitor (MLPLI)	207
Lungkine (CXCL15)	210	Membrane Primary Amine Oxidase	332
Luterotropic hormone	277	Mesencephalic Astrocyte-Derived Neurotrophic Factor	212
Lutetropin	277	Mesothelin	220, 237
Lymphocyte Activation Gene-1	202	MGC108734	334
Lymphocyte antigen 96	217	MGC99561	334
Lymphocyte IgE receptor	53	MGDF	323
Lymphocyte-Activating Factor (LAF)	152, 153	MGI-1G	112
Lymphopoietin 1 (LP-1)	163	MGI-1GM	122
Lymphotactin (XCL1)	211	MGI-2	161
Lymphotoxin-alpha (LT- α)	320	MGI-IM	214
Lysobacter Enzymogenes Arg-C	20	MGSA α	128
MAC2	109	MGSA β	128
Mac25	151	MGSA γ	128
Macrophage Colony Stimulating Factor	214	MIA	221
Macrophage Inflammatory Protein-1 α	226	MIA-2	222
Macrophage Inflammatory Protein-1 β	226	MIAL (Melanoma Inhibitory Activity-like Protein)	257
Macrophage Inflammatory Protein-1 γ	227	MIC-1	118
Macrophage Inflammatory Protein-2	228	Midkine	223
Macrophage Inflammatory Protein-3	229	MIF	224
Macrophage Inflammatory Protein-3 α	230	MIG (CXCL9)	225
Macrophage Inflammatory Protein 3 β	231	MIP-1 α (CCL3)	226
Macrophage Inflammatory Protein-4	232	MIP-1 β (CCL4)	226
Macrophage Inflammatory Protein-5	233	MIP-1 γ (CCL9/10)	227
Macrophage Inhibitory Cytokine 1	118	MIP-2	228
Macrophage Migration Inhibitory Factor	224	MIP-2 (CXCL2)	128
Macrophage-Derived Chemokine	218	MIP-2 α	128
MAF	141	MIP-2 β	128
Major group rhinovirus receptor	137	MIP-3 (CCL23)	229
Mammotropin	277	MIP-3 α (CCL20)	230
MANF	212	MIP-3 β (CCL19)	231
MARC	215	MIP-4 (CCL18)	232
Maspin	213	MIP-5 (CCL15)	233
Mast Cell Growth Factor (MGF)	292	MK	223
Matrix Metalloproteinase-1	234	mMIF	224
Matrix Metalloproteinase-2	235	MMP-1	234
Matrix Metalloproteinase-3	236	MMP-2	235
MCAF	215	MMP-3	236
MCGF (Mast Cell Growth Factor)	157	Monocyte Arg-serpin	262
MCP-1 (CCL2)	215	Monocyte Chemotactic Protein-1	215
MCP-2 (CCL8)	215	Monocyte Chemotactic Protein-2	215
MCP-3 (CCL7)	215	Monocyte Chemotactic Protein-3	215
MCP-4 (CCL13)	215	Monocyte Chemotactic Protein-4	215
MCP-5 (CCL12)	215	Monocyte Chemotactic Protein-5	215
M-CSF	214	Monocyte differentiation antigen CD14	51
MD-2/LY96	217	Monocyte-Derived Neutrophil Chemotactic Factor (MDNCF)	164
MDA-7 (Melanoma Differentiation-Associated gene 7 protein)	183	Monokine Induced by Interferon- γ	225
MDC (CCL22)	218	Mononuclear Cell Factor (MCF)	152, 153
MDC (CCL22) (67 a.a.)	218	MPF	220, 237
MDC (CCL22) (69 a.a.)	218	MPIF-1	229

Index

MPIF-2	82	Noggin	249
MRP-1	46	NOTCH4-like protein	76
MRP2	227	NOV	250
MSLN	220, 237	Novel Neurtrophin-1/B-Cell-Stimulating Factor-3	248
MTN-1	204	NovH	250
MTS-1	259	NP	244
Mucosae-associated Epithelial Chemokine	219	NP-1	251
Multi-CSF	157	NPO	243
Multiple EGF-like domains protein 7	76	NRG-1	118
Multiple Tumor Suppressor 1	259	NRN1	243
Mycoplasma Arginine Deiminase	21	NRTN	246
Myeloid differentiation protein-2	217	NT-3	252
Myeloid-derived growth factor (MYDGF)	297	NT-4	253
Myostatin	238	NTN	246
Myostatin-Propeptide	239	NTRKR1	288
NAmPRTase (nicotinamide phosphoribosyltransferase)	340	Obesity protein (OB)	205
Nampt	340	Obesity Protein (OB) Receptor	206
Nanog	240	OB-R	206
Nanog-TAT	240	OCC1	104
NAP-1	164	OCC-1	104
NAP-2 (CXCL7)	241	OCIF (Osteoclastogenesis Inhibitory Factor)	255
NAP-3	128	ODAR (Osteoclast Differentiation and Activation Receptor)	280
NC30	170	ODF (Osteoclast Differentiation Factor)	279
NCC-1	215	ODFR (Osteoclast Differentiation Factor Receptor)	280
NCC-2	131	OKT4(a-f)	49
NCC-4	204	ON	301
Necrosin	319	Oncostatin A	271
NEGF-2	223	Oncostatin M	254
Nephroblastoma Overexpressed gene	250	Oncostatin M (196 a.a.)	254
Nephropontin	256	Oncostatin M (209 a.a.)	254
Nerve Growth Factor-2 (NGF-2)	252	Oncostatin M (227 a.a.)	254
Nesfatin-1	242	OPG	255
Neu differentiation factor (rat)	132	OPGL	279
Neublastin	22	OSM	254
Neuregulin1 (NRG1-β1)	132	Osteoblast-Specific Factor 1 (OSF-1)	272
Neuritin	243	Osteogenic Protein-1 (OP-1)	39
Neuropoietin	244	Osteogenin	35
Neuroserpin	245	Osteopontin	256
Neurotactin	101	Osteoprotegerin	255
Neurotrophic factor	252	Osteosarcoma-Derived Growth Factor (ODGF)	264
Neurotrophic tyrosine kinase	288	OTOR	257
Neurotrophin 4/5 (NT-4/NT-5)	253	Otoraplin	257
Neurotrophin-3	252	sOX40 Ligand	258
Neurotrophin-4	253	OX40L	258
Neurturin	246	p16-INK4	259
Neutrophil Activating Factor (NAF)	164	p16INK4A	259
Neutrophil Activating Protein-2	241	p16-INK4a	259
Neutrophil Peptide-1	251	p16-INK4a-TAT	259
NF-HEV	186	p28	184
NGF-β	247	p40 cytokine	165
NIRF	174	p55	321
NJAC	42	p60	321
NK cell Stimulating Factor Chain 1	168	P600	170
NK cell Stimulating Factor Chain 2	168	p75	322
NKSF	168	p80	322
NNT-1/BCSF-3	248	PACE	105

Index

PAF 2-acylhydrolase	260	pluripoietin	112
PAF acetylhydrolase	260	Pluripoietin- α	122
PAF-AH	260	PNR2	306
PAI-1	261	Polyergin	308
PAI-2	262	pre-B-cell factor	163
Parathyroid Hormone-related Protein	278	Pre-pro-megakaryocyte-potentiating factor	220, 237
PARC	232	Programmed cell death 1 Ligand 1 (PDCD1L1)	266
PBEF (Pre-B-cell colony-enhancing factor)	340	Programmed cell death 1 ligand 2 (PDCD1 ligand 2)	267
PBP (parent molecule)	241	Programmed cell death protein 1 (PDCD1)	263
PBSF	295	Programmed Death Ligand 1	266
P-cell stimulation factor	157	Programmed death ligand 2	267
PCGF	264	PROK1	77
PCSK3	105	PROK2	276
PD-1	263, 266	Prokineticin 1	77
PD-1 Fc	263	Prokineticin-2	276
PD-1 ligand 2	267	Prolactin	277
PDCD1L2	267	Prostate Differentiation Factor (PDF)	118
PDCD1LG2	267	Prostatropin	92
PDGF-AA	264	Protease inhibitor 12	245
PDGF-AB	264	Protease inhibitor 5	213
PDGF-BB	264	Protein Bv8 homolog	276
PDGF-CC	265	pS2 protein	306
PD-L1 Fc	266	PSP	270
PD-L2 Fc	267	PSPN	270
PDLB7DC	267	PTHrP	278
PECAM-1	268	PTN	272
PEDF	269	PWTSR	291
Persephin	270	sRANK Ligand	279
PF-4 (CXCL4)	271	sRANK Receptor	280
PGF	273	RANTES (CCL5)	281
PGFL	273, 274, 275	RARRES2	61
PIG4	17	Receptor-related 1	288
PIGF	273	Receptor-tyrosine-kinase-like orphan receptor 1	288
Pigment Epithelium-Derived Factor	269	Regulation upon Activation Normal T-cell Express Sequence	281
Pituitary growth hormone	127	REIC	71
PK2	276	Relaxin-2	282
PLAB	118	Relaxin-3	283
Placenta Growth Factor-1	273	REL α	284
Placenta Growth Factor-2	274	REL β	285
Placenta Growth Factor-3	275	REL γ	286
Placenta Protein 12 (PP12)	145	Resistin	287
Placental TGF β	118	Resistin-like α	284
Plasma protease C1 inhibitor	44	Resistin-like β	285
Plasminogen Activator Inhibitor-1	261	Resistin-like γ	286
Plasminogen Activator Inhibitor-2	262	RLN2	282
Platelet Endothelial Cell Adhesion Molecule	268	Roof plate-specific Spondin-1	289
Platelet Factor-4	271	Roof plate-specific Spondin-2	290
Platelet-Derived Growth Factor-AA	264	Roof plate-specific Spondin-3	291
Platelet-Derived Growth Factor-AB	264	ROR1	288
Platelet-Derived Growth Factor-BB	264	RSPO1	289
Platelet-Derived Growth Factor-CC	265	RSPO2	290
Pleiotrophin	272	RSPO3	291
PIGF	273	R-Spondin-1	289
PIGF-1	273	R-Spondin-2	290
PIGF-2	274	R-Spondin-3	291
PIGF-3	275	SAP1	31

Index

Sarcoma growth factor	307	soluble CD34	57
SARP-2	102	soluble CD40 Ligand	58
Scatter Factor (SF)	133	soluble CD100	59
SCF	292	soluble DLL-1	72
SCGF- α	293	soluble DLL-4	73
SCGF- β	293	soluble Fas Ligand (sFasL)	89
Sclerostin	294	soluble IL-2 Receptor alpha	156
SCM-1a	211	soluble IL-4 Receptor alpha	159
SCYA19	231	soluble IL-6 Receptor alpha	162
SDF-1 α (CXCL12)	295	soluble Fas Receptor (sFasR)	90
SDF-1 β (CXCL12)	295	soluble Interleukin-2Ra	156
Secreted Apoptosis Related Protein-2	102	soluble Interleukin-4Ra	159
Secreted Frizzled Related Protein-1	102	soluble Interleukin-6Ra	162
Secreted frizzled-related protein 4	103	soluble Receptor Activator of NF- κ B Ligand	279
Secreted phosphoprotein 1	256	soluble TRAIL Receptor-1	325
Secreted Protein Acidic and Rich in Cysteine	301	soluble TRAIL Receptor-2	325
Secretoglobulin family 1A member 1	331	soluble Tumor Necrosis Factor Type I	321
SELE	87	soluble Tumor Necrosis Factor Type II	322
SEMA3A	296	Somatamedin A	144
SEMAD	296	Somatamedin C	144
Semaphorin 3A Fc	296	Somatotropin	127
Semaphorin-4D	59	Sonic Hedgehog (Shh)	299
Seraspenide	310	SOST	294
Serpin B2	262	SOST1	294
Serpin E1	261	Sox2	300
Serpin G1	44	Sox2-TAT	300
Serpin I1	245	SPARC/Osteonectin	301
SerpinB5	213	Spasmodysin	306
SerpinF1	269	Spasmodytic Polypeptide (SP)	306
Serum amyloid A apolipoprotein	17	Spinal Cord-Derived Growth Factor (SCDGF)	265
Serum amyloid A protein (SAA)	17	SPP-1	256
Serum amyloid A-1 protein	18	SRPSOX	67
Serum-spreading factor	341	SSAO	332
Sex determining Region Y (SRY)-box 2	300	Staphylococcus Glu-C	121
SF-20	297	STCP-1	218
Siglec-2	52	Steel Factor	292
SIS-delta	281	Stem Cell Factor	292
SK	69	Stem Cell Growth Factor- α	293
Skin-Antimicrobial Peptide 1	31	Stem Cell Growth Factor- β	293
Skinkine	63	Stromal-Cell Derived Factor-1	295
SL-1	236	Stromelysin-1	236
S-LAC lectin-1	108	T β -4	310
SLC	88	TAC-antigen	156
SLE1	266	TACI	302
SLEB2	263, 266	TAFA-2	303
SLIL3	298	TALL-1	27
Slit homolog 2 protein	298	TALL-2	19
Slit2-N	298	TARC (CCL17)	304
Smag-82	92	Tazarotene-Induced Gene 2 (TIG2)	61
SMRP	220, 237	TB4X	310
soluble CD14	51	T-BAM	58
soluble CD22	52	TBE-1	235
soluble CD23	53	TCA-3	137
soluble CD27 Ligand	54	T-cell activation-2	202
soluble CD28 Fc	55	T-cell antigen IIA	24
soluble CD30 Ligand	56	T-cell Growth Factor (TCGF)	155

Index

T-cell growth factor p40.....	165	TNFR1	321
T-cell interferon.....	141	TNFR2	322
T-cell surface antigen T4/Leu-3	49	TNFRSF1A	321
T-cell surface glycoprotein CD4	49	TNFRSF1B	322
T-cell surface glycoprotein CD8 alpha chain.....	50	TNFRSF6.....	90
T-cell-specific surface glycoprotein CD28	55	TNFRSF9.....	24
TECK (CCL25).....	305	TNFRSF10A	325
TF	314	TNFRSF10B	325
TF1	306	TNFRSF11A	280
TFF-1	306	TNFRSF11B	255
TFF-2	306	TNFRSF12A	330
TFF-3	306	TNFRSF13B	302
TFI	314	TNFRSF13C	28
TGF-type 1	307	TNFRSF17	30
TGF- α	307	TNFSF1B.....	320
TGF- β 1.....	308	TNFSF2.....	319
TGF- β 1-stimulated clone 36.....	104	TNFSF20.....	27
TGF- β 2.....	308	TNFSF4.....	258
TGF- β 3.....	308	TNFSF5.....	58
TGIF	166	TNFSF6.....	89
THANK.....	27	TNFSF7.....	54
THBD.....	309	TNFSF8.....	56
THPH11	135	TNFSF9.....	23
Thrombomodulin	309	TNFSF10.....	324
Thromboplastin.....	314	TNFSF11.....	279
Thrombopoietin.....	323	TNFSF12.....	329
THSD2	291	TNFSF13.....	19
Thymic Stromal Lymphopoietin	328	TNFSF13B	27
Thymosin- β 4.....	310	TNFSF14.....	208
Thymus and Activation-Regulated Chemokine	304	TNFSF15.....	315
Thymus Expressed Chemokine.....	305	TNFSF18.....	9
TIGAR	311	TNFSFR14.....	136
TIGAR-TAT	311	TNSF1A.....	319
TIMP-1.....	312	TOLL.....	317
TIMP-2.....	313	Toll-Like Receptor 3	316
Tissue Factor	314	Toll-like receptor 4.....	317
Tissue Inhibitor of Metalloproteinases 1	312	TP44	55
Tissue Inhibitor of Metalloproteinases 2	313	TP5314.....	17
TL-1A.....	315	TP53-Induced Glycolysis and Apoptosis Regulator (TIGAR).....	311
TL2.....	324	TPO.....	323
TL-6	9	TR1	255
TLR-3.....	316	TR2	136
TLR-4.....	317	TRAIL.....	324
T-lymphocyte differentiation antigen T8/Leu-2.....	50	sTRAIL Receptor-1.....	325
TM.....	309	sTRAIL Receptor-2.....	325
TMIGD2/CD28H Fc.....	318	sTRAIL/Apo2L.....	324
TMSB4.....	310	TRANCE (TNF-Related Activation-induced Cytokine)	279
TMSB4X.....	310	TRANCE Receptor.....	280
TNF- α	319	Transforming Growth Factor- α	307
TNF- β	320	Transforming Growth Factor- β 1	308
sTNF Receptor Type I.....	321	Transforming Growth Factor- β 2	308
sTNF Receptor Type II	322	Transforming Growth Factor- β 3	308
TNF-Related Apoptosis-Inducing Ligand.....	324	Transforming protein KS3	92
TNF-related Weak Inducer of Apoptosis	329	Transin-1	236
TNF-related Weak Inducer of Apoptosis Receptor.....	330	Transmembrane Activator and CAML Interactor	302
TNFAR.....	321	Transmembrane and immunoglobulin domain-containing protein 2.....	318

Index

TRAP	58	VEGF-related factor	336
TRDL-1	19	VEGI	315
Trefoil Factor 1	306	VE-statin	76
Trefoil Factor 2	306	VF	340
Trefoil Factor 3	306	VG-1-related protein	38
TREM-1 Fc	326	VGR	38
TRF	160	Vgr-2	114
TRICK2A	325	Vim	339
TRICKB	325	Vimentin	339
Triggering receptor expressed on monocytes 1	326	Visceral adipose tissue-derived serpin	333
TSC-36	104	Visfatin	340
TSF	168	Vitronectin	341
TSG	327	VPF	335
TSLP	328	VRF	336
Tumor Necrosis Factor- α	319	VRP	337
Tumor Necrosis Factor- β	320	VTN	341
TWEAK	329	WFIKKNRP	110
TWEAK Receptor	330	Wingless-type MMTV (Mouse Mammary Tumor Virus) integration site family member 3a	345
Twisted Gastrulation Protein	327	WISP-1	342
TXGP1	258	WISP-3	343
Type I Interferon	140	Wnt-1	344
Type II interferon	141	Wnt-1-induced secreted protein	342
Tyrosine-protein kinase transmembrane receptor ROR1	288	Wnt-1 Inducible Signaling Pathway protein-1	342
UNQ1833/PRO3446	124	Wnt-1 Inducible Signaling Pathway protein-3	343
UNQ2222/PRO248	114	Wnt-1 proto-oncogene protein (precursor)	344
UNQ6973/PRO21956	347	WNT14B	347
UP1	331	WNT15	347
UP-1	331	Wnt-3a	345
URG	74	Wnt-7a	346
Urinary protein 1	331	Wnt-9b	347
Urine protein 1	331	Za11	180
Urogastrone	74	ZCCHC1	209
Urokinase Inhibitor	262	zFGF5	92
Uropontin	256	Zneu1	76
Uteroglobin	331	ZTNF4	27
V75	341		
V8 Protease	121		
VAP-1	332		
Vascular Adhesion Protein-1	332		
Vascular Cell Adhesion Molecule 1	334		
Vascular Endothelial Growth Factor 121	335		
Vascular Endothelial Growth Factor 165	335		
Vascular Endothelial Growth Factor-B	336		
Vascular Endothelial Growth Factor-C	337		
Vascular Endothelial Growth Factor-D	338		
Vaspin	333		
VBCH	294		
VCAM	334		
VCAM1	334		
VCAM-1	334		
VCAM1B	334		
VECAM1	334		
VEGF-A	335		
VEGF-B	336		
VEGF-C	337		
VEGF-D	338		

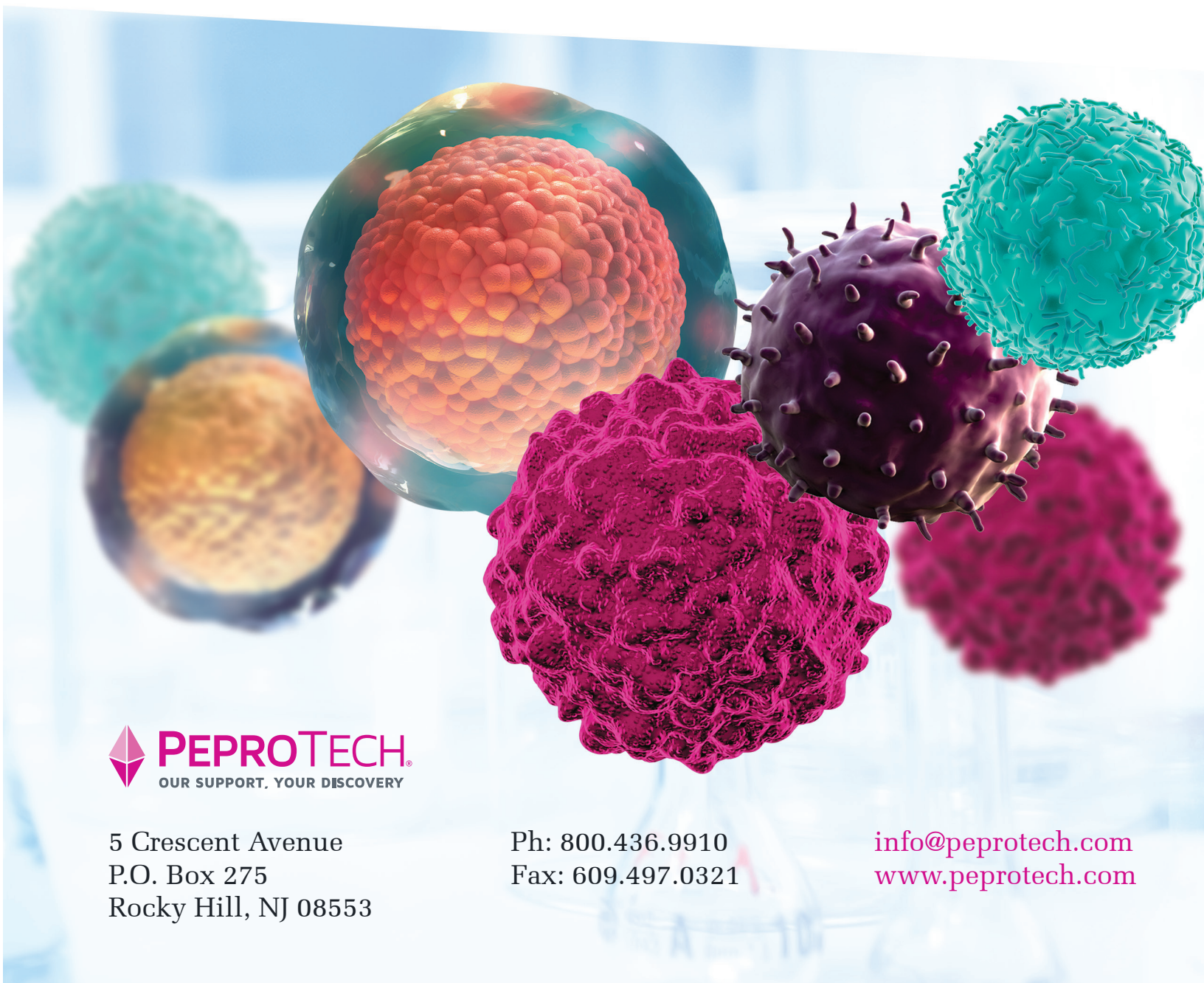
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