

Recombinant Human Activin-A active (rh Activin-A)

Synonyms: Erythroid differentiation protein, EDF, Inhibin-Beta A chain.

Introduction: Activins are homodimers or heterodimers of the various β subunit isoforms, belonging to the TGF β -family. Mature Activin A has two 116 amino acids residues β A subunits (β A- β A). Activin exhibits a wide range of biological activities, including mesoderm induction, neural cell differentiation, bone remodelling, haematopoiesis and reproductive physiology. Activins play a key role in the production and regulation of hormones such as FSH, LH, GnRH and ACTH. Cells known to express Activin A include fibroblasts, endothelial cells, hepatocytes, vascular smooth muscle cells, macrophages, keratinocytes, osteoclasts, bone marrow monocytes, prostatic epithelium, neurons, chondrocytes, osteoblasts, Leydig cells, Sertoli cells and ovarian granulosa cells. As with other members of the super-family, Activins interact with two types of cell surface trans-membrane receptors (Types I and II) which have intrinsic serine / threonine kinase activities in their cytoplasmic domains, Activin type 1 receptors, ACVR1, ACVR1B, ACVR1C and Activin type 2 receptors, ACVR2A, ACVR2B. The biological activity of Activin A can be neutralized by inhibins and by the diffusible TGF- β antagonist, Follistatin.

Description: Human recombinant active form Activin-A produced in plant is a single homodimeric, glycosylated, polypeptide chain containing 2 x 116 amino acids and having a molecular weight of 27.4 kDa. The Active form Activin-A is fused to a 6-His tag at N-terminus and purified by standard chromatographic techniques.

Source: *Nicotiana benthamiana*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a concentrated solution containing 50mM Tris-HCl pH-7.4

Solubility: Activin-A should be reconstituted in distilled water to a concentration of 50 μ g/ml. Due to the protein nature, dimers and multimers may be observed.

Stability: Lyophilized rh Activin-A although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh Activin-A should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 97.0% as determined by SDS-PAGE.

Amino Acid Sequence: HHHHHHGLECDGKVNICKKQFFVSKDIGWNDWIIAPSG
YHANYCEGECPSHIAGTSGSSLSFHSTVINHYRMRGHSPFA
NLKSCCVPTKLRPMSMLYYDDGQNIKKDIQNMIVEECGCS.

Biological Activity: The biological activity of Activin A is measured by its ability to inhibit mouse plasmacytoma cell line (MPC-11) cells proliferation ([3 H]thymidine incorporation). $ED_{50} < 5$ ng/ml, corresponding to a specific activity of 2×10^5 units/mg.

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<i>small</i>	1 μ g	Cat.N°	11344471
<i>medium</i>	5 μ g	Cat.N°	11344470
<i>large</i>	25 μ g	Cat.N°	11344474

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Recombinant Human B Lymphocyte Stimulator (rh BAFF / CD257)

Synonymes BLYS, THANK, zTNF4, TALL-1, TNFSF13B, B-cell Activating Factor.

Introduction: BAFF, a member of the TNF family 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. The protein contains the TNF-like portion of the extracellular domain of BAFF. Administration of BAFF to mice disrupts splenic B-cell and T-cell zones and results in elevated levels of serum immunoglobulin.

Description: Recombinant human BAFF produced in E.Coli is a single, non-glycosylated polypeptide chain containing 153 amino acids and having a molecular mass of 17 kDa. The rh BAFF is purified by proprietary chromatographic techniques.

Source: Escherichia Coli

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22µm filtered solution in PBS, pH 7.4

The samples of 1 µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh BAFF in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh BAFF although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh BAFF should be stored at 4° C between 2-7 days and for future use below -18° C. Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino Acid Sequence: MAVQGPEETV TQDCLQLIAD SETPTIQKGS YTFVPWLLSF KRGSALLEEKE NKILVKETGY FFIYGQVLYT DKTYAMGHLI QRKKVHVFGD ELSLVTLFRC IQNMPETLPN NSCYSAGIAK LEEGDELQLA IPRENAQISL DGDVTFFGAL KLL.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Biological Activity: Tested by its ability to stimulate secretion of IL-8 of human PBMCs. The ED₅₀ for this effect is less than 10ng/ml corresponding to a specific activity of 10⁵ IU/mg

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<i>small</i>	5 µg	Cat.N°	11343430
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Recombinant Human Bone Morphogenetic Protein -2 (rh BMP-2)

Synonyms: BMP2A.

Introduction: BMPs (Bone Morphogenetic Proteins) belong to the TGF-beta 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. BMP-2 regulates similarly to its nearest homologue BMP-4 diverse fundamental processes during embryonic development: BMP-2 and other BMP proteins have great potential for medical therapeutic application, in particular because they allow or at least accelerate the ossification of extensive bone lesions. BMP-2 lacks the natural N-terminus which results in a 15-20 fold increase of specific activity. BMP-2 is a heparin binding protein.

Description: Recombinant human Bone Morphogenetic Protein-2 (BMP-2) is a disulfide-bonded homodimeric, non-glycosylated protein consisting of two 115 amino acid polypeptide chains with an apparent molecular weight of 26 kDa. The human BMP-2 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilised from a 0.22 µm filtered solution in 25 mM sodium acetate, pH 4.0
The aliquots of 1 µg and 2 µg contain Trehalose 5% (w/vol) for better recovery

Solubility: The lyophilised BMP-2 is soluble in distilled water and most aqueous buffer at concentrations greater than 1 mg/ml when the pH is below 6.0. Above pH 6.0 the solubility is low, but could be increased by addition of 1M NaCl or 30% 2 propanol.

Stability: Lyophilized rh BMP-2 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rh BMP-2 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSS or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE silver stained gel.

Biological Activity: Measured by the ability of BMP-2 to induce alkaline phosphatase production by C2C12 myogenic cell the specific activity is ~ 2.5x 10³ units/mg

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method

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<i>medium</i>	10 µg	Cat.N°	11343273
<i>large</i>	50 µg	Cat.N°	11343275
<i>x-large</i>	250 µg	Cat.N°	11343277
<i>xx-large</i>	1000 µg	Cat.N°	11343278

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Recombinant Human Ciliary Neurotrophic Factor (rh CNTF)

Synonyms: HCNTF, Ciliary Neurotrophic Factor.

Introduction: CNTF is a polypeptide hormone whose actions appear to be restricted to the nervous system where it promotes neurotransmitter synthesis and neurite outgrowth in certain neuronal populations. The protein is a potent survival factor for neurons and oligodendrocytes and may be relevant in reducing tissue destruction during inflammatory attacks. A mutation in this gene resulting in aberrant splicing leads to ciliary neurotrophic factor deficiency, but this phenotype is not causally related to neurologic disease. In addition to the predominant monocistronic transcript originating from this locus the gene is also co-transcribed with the upstream ZFP91 gene. Co-transcription from the two loci results in a transcript that contains a complete coding region for the zinc finger protein but lacks a complete coding region for ciliary neurotrophic factor. CNTF is a survival factor for various neuronal cell types. Seems to prevent the degeneration of motor axons after axotomy.

Description: Recombinant human CNTF produced in E.Coli is a single, non-glycosylated polypeptide chain containing 199 amino acids and having a molecular mass of 22.7 kDa. The rh CNTF is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.2µm filtered concentrated solution in 25 mM sodium phosphate, 250 mM NaCl, pH6.5

The samples of 1µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh CNTF in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh CNTF although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh CNTF should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by Analysis by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Amino acid sequence:

MAFTEHSPLTPHRRDLCSRSIWLARKIRSDLTALTESYVKHQGLNKNINLDSADGMPVASTDQWSELTEAERLQ
ENLQAYRTFHVLLARLLEDQQVHFTPTGDFHQAIHTLLLQVAAFAYQIEELMILLEYKIPRNEADGMPINVGDDG
LFEKKLWGLKVLQELSQWTVRSIHDLRFISSHQTGIPARGSHYIANNKKM

Biological Activity: The ED₅₀ as determined by the dose-dependant stimulation of TF-1 cells is < 2 ng/ml, corresponding to a specific activity of 5 x 10⁵ IU/mg.

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<i>medium</i>	20 µg	Cat.N°	11343424
<i>large</i>	100 µg	Cat.N°	11343426
<i>x-large</i>	500 µg	Cat.N°	11343427

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Recombinant Human Connective Tissue Growth Factor (rh CTGF)

Synonyms: CCN2, NOV2, HCS24, IGFBP8

Introduction: Connective Tissue Growth Factor belongs to the CCN family of proteins. The CCN family presently consists of six members in human also known as: Cyr61 (Cystein rich 61), CTGF (Connective Tissue Growth Factor), Nov (Nephroblastoma Overexpressed gene), WISP-1, 2 and 3 (Wnt-1 Induced Secreted Proteins). The CCN genes encode secreted proteins associated with the Extracellular Matrix (ECM) and cell membrane. CCN proteins are matricellular proteins which are involved in the regulation of various cellular functions including: proliferation, differentiation, survival, adhesion and migration. They are expressed in derivatives of the three embryonic sheets and are implicated in the development of kidney, nervous system, muscle, bone marrow, cartilage and bone. During adulthood, they are implicated in wound healing, bone fracture repair, and pathologies such as: fibrosis, vascular ailments and tumorigenesis. Full length secreted CCN proteins can show an antiproliferative activity, whereas truncated isoforms are likely to stimulate proliferation and behave as oncogenes. The full length protein consists of four modules: **Module I** shares partial identity with the N-terminal part of the Insulin-like Growth Factor Binding Proteins (IGFBPs). **Module II** includes a stretch of 70 amino acid residues – which shares sequence identity with the Von Willebrand Factor Type C repeat (VWC). **Module III** contains sequences sharing identity with the Thrombospondin type 1 repeat (TSP1) (WSXCSXXCG), which is thought to be implicated in the binding of sulfated glycoconjugates and to be important for cell adhesion. **Module IV**, also designated CT, is encoded by exon5. It is the least conserved one of the four domains at the level of nucleotide sequence, but it appears to be critical for several of the biological functions attributed to the CCN proteins. Module IV resembles the CT domain of several extracellular protein including, Von Willebrand's factor and mucins. Sequence similarities to heparin-binding motifs are also found within this domain. Proteolysis of the secreted full-length CCN proteins that has been reported in the case of CTGF and CCN3 might result in the production of CCN-derived peptides with high affinity for ligands that full-length CCN proteins bind only poorly. Amino-truncated CTGF isoforms were biologically active whereas no specific biological activity has been attributed to the truncated CCN3. Although the molecular processes underlying the production of these secreted isoforms is presently unknown, it is important to note that proteolysis occur at the same amino acid residues in both CTGF and CCN3. An elevated expression of CTGF has also been detected by Northern blotting in human invasive mammary ductal carcinomas, dermatofibromas, pyogenic granuloma, endothelial cells of angioliomas and angioleiomyomas, and in pancreatic tumors. A study performed with chondrosarcomas representative of various histological grades established that CTGF expression was closely correlated with increasing levels of malignancy. In agreement with CTGF playing a role in brain tumor angiogenesis, immunocytochemistry studies indicated that both glioblastoma tumor cells and proliferating endothelial cells stained positive for CTGF. In astrocytomas, CTGF expression was particularly elevated in high grade tumors, with a marked effect of CTGF on cell proliferation. Downregulation of CTGF expression in these cells was associated with a growth arrest at the G1/S transition while over-expression of CTGF induced a two-fold increase of the number of cells in the G1 phase. Gene profiling analysis allowed to identify a set of about 50 genes whose expression might account for the proliferative activity of CTGF in these cells. CTGF was seen in a higher proportion of mononuclear cells of patients with acute lymphoblastic leukemia.

Description: Recombinant human CTGF produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 98 amino acids and having a molecular mass of 11.2 kDa. The CTGF is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from 1mg/ml solution containing 10mM NaAcetate buffer pH-6. The samples of 1µg contain Trehalose 5% (w/vol) for better recovery

Solubility: Reconstitute at 0.1 mg/ml with 5mM NaAcetate, pH-6

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Stability: Lyophilized rh CTGF, although stable at room temperature for 3 weeks, should be stored desiccated below -18°C . Upon reconstitution rh CTGF should be stored at 4°C between 2-7 days and for future use below -18°C . For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Purity of CTGF is greater than 95% as determined by SDS-PAGE.

Amino acid sequence: MGKKCIRTPK ISKPIKFELS GCTSMKTYRA KFCGVCTDGR CCTPHRTTTL
PVEFKCPDGE VMKKNMMFIK TCACHYNCPG DNDIFESLYY RKMYGDMA

Endotoxicity: The endotoxin level is less than 1 EU / μg determined by LAL method.

Biological Activity: Determined by the dose-dependent stimulation of the proliferation of HUVEC cells the expected ED_{50} for this effect is 1.0 - 2.0 $\mu\text{g}/\text{ml}$.

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Recombinant Human Fibroblast Growth Factor-acidic (rh FGF-a / FGF-1)

Synonyms: HBGF-1, FIBP, FGFIBP, FIBP-1, ECGF, ECGFA

Introduction: Acidic fibroblast growth factor is a member of the fibroblast growth factor (FGF) family. FGF family members possess broad mitogenic and cell survival activities, and are involved in a variety of biological processes, including embryonic development, cell growth, morphogenesis, tissue repair, tumor growth and invasion. This protein functions as a modifier of endothelial cell migration and proliferation, as well as an angiogenic factor. It acts as a mitogen for a variety of mesoderm- and neuroectoderm-derived cells in vitro, thus is thought to be involved in organogenesis. Three alternatively spliced variants encoding different isoforms have been described. The heparin-binding growth factors are angiogenic agents in vivo and are potent mitogens for a variety of cell types in vitro. There are differences in the tissue distribution and concentration of these 2 growth factors.

Description: Recombinant human FGF-acidic (FGF-1) produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 141 amino acids and having a molecular mass of 15967 Dalton. The rh FGF-acidic is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: lyophilized from 0.22µm filtered solution in 10mM sodium phosphate, 75mM NaCl, pH 7.5.

Solubility: It is recommended to reconstitute the lyophilized rh FGF-acidic in sterile H₂O at 4 degrees Celsius at a concentration of 0.1mg - 0.25mg per 1ml. Allow sample to sit for 5 minutes at 4 degrees, spin to remove precipitant.

Stability: Lyophilized rh FGF-acidic although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh FGF-acidic should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino acid Sequence: MFNLPPGNYK KPKLLYCSNG GHFLRILPDG TVDGTDRDRSD QHIQLQLSAE SVGEVYIKST ETGQYLAMDT DGLLYGSQTP NEECLFLERL EENHYNTYIS KKHAEKNWFV GLKKNNGSCKR GPRTHYGQKA ILFLPLPVSS D

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Biological Activity: Calculated by the dose-dependant proliferation of BAF3 cells expressing FGF receptors the ED50 is < 1 ng/ml.

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<i>medium</i>	50 µg	Cat.N°	11343555
<i>large</i>	250 µg	Cat.N°	11343557
<i>x-large</i>	1000 µg	Cat.N°	11343558

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Recombinant Human Fibroblast Growth Factor-basic (rh FGF-b / FGF-2)

Synonyms: Prostatropin

Introduction: Basic fibroblast growth factor is a member of the fibroblast growth factor (FGF) family. FGF family members possess broad mitogenic and cell survival activities, and are involved in a variety of biological processes, including embryonic development, cell growth, morphogenesis, tissue repair, tumor growth and invasion. This protein functions as a modifier of endothelial cell migration and proliferation, as well as an angiogenic factor. It acts as a mitogen for a variety of mesoderm- and neuroectoderm-derived cells in vitro, thus is thought to be involved in organogenesis. Three alternatively spliced variants encoding different isoforms have been described. The heparin-binding growth factors are angiogenic agents in vivo and are potent mitogens for a variety of cell types in vitro. There are differences in the tissue distribution and concentration of these 2 growth factors.

Description: Recombinant human FGF-b produced in E.Coli is a single, non-glycosylated polypeptide chain containing 154 amino acids and having a molecular mass of 16.5 kDa. The rh FGF-b is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 25 mM sodium phosphate, 200 mM NaCl, pH 7.6. The samples of 1µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized FGF-basic in sterile H₂O, not less than 100µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh FGF-basic although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh FGF-basic should be stored below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-page.

AminoAcid Sequence: MAAGSITLTP ALPEDGGSGA FPPGHFKDPK RLYCKNGGFF LRIHPDGRVD
GVREKSDPHI KLQLQAEERG VVSIKGVCAN RYLAMKEDGR LLASKCVTDE CFFFERLESN
NYNTYRSRKY TSWYVALKRT GQYKLGSKTG PGQKAILFLP MSAKS

Endotoxin level: The endotoxin level is less than 1 EU / µg determined by LAL method

Biological Activity: Tested by dose dependent stimulation of proliferation of murine 3T3 fibroblast cell line the biological activity of rh FGF-2 is 1x10⁷ IU/mg

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<i>medium</i>	50 µg	Cat.N°	11343625
<i>large</i>	250 µg	Cat.N°	11343627
<i>x-large</i>	1000 µg	Cat.N°	11343628

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Recombinant Human Fibroblast Growth Factor-9 (rh FGF-9)

Synonyms: GAF (Glia-activating factor), HBGF-9

Introduction: The human FGF-9 cDNA encodes a 208 amino acid residue protein that contains a single, potential N-linked glycosylation site. The native protein is glycosylated and is efficiently secreted after synthesis, although FGF-9 lacks a typical secretion signal. Rat and mouse FGF-9 show a very high homology to human FGF-9. The transcripts for FGF-9 have been found in brain and in kidney tissue. FGF-9 is a member of the fibroblast growth factor (FGF) family. FGF family members possess broad mitogenic and cell survival activities, and are involved in a variety of biological processes, including embryonic development, cell growth, morphogenesis, tissue repair, tumor growth and invasion. FGF-9 was isolated as a secreted factor that exhibits a growth-stimulating effect on cultured glial cells. In nervous system FGF-9 is produced mainly by neurons and may be important for glial cell development. Expression of the mouse homolog of this gene was found to be dependent on Sonic hedgehog (SHH) signaling. Mice lacking the homolog gene displayed a male-to-female sex reversal phenotype which suggested a role in testicular embryogenesis FGF-9 may have a role in glial cell growth and differentiation during development, gliosis during repair and regeneration of brain tissue after damage, differentiation and survival of neuronal cells and growth stimulation of glial tumors.

Description: Recombinant human Fibroblast Growth Factor 9 produced in Sf9 insect cells is a single, glycosylated, polypeptide chain containing 208 amino acids and having a molecular mass of 23 Dalton. The FGF-9 is purified by proprietary chromatographic techniques.

Source: *Escherichia coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: lyophilized from 0.2 µm filtered solution in 25 mM Na₂HPO₄, 300mM NaCl, pH 8

Solubility: It is recommended to reconstitute the lyophilized Fibroblast Growth Factor 9 Human Rekominant sterile H₂O, not less than 100µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh FGF-basic although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh FGF-basic should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95% (verified by SDS-PAGE / silver stain)

Amino acid sequence: MRPLAFSDAG PHVHYGWGDP IRLRHLYTSG PHGLSSCFLR IRADGVVDCA RGQSAHSLLE IKAVALRTVA IKGVHSVRYL CMGADGKMQG LLQYSEEDCA FEEEIRPDGY NVYRSEKHRL PVSLSSAKQR QLYKNRGFLP LSHFLPMLPM VPEEPEDLRG HLESDMFSSP LETDSMDPFG LVTGLEAVRS PSFEK

Biological Activity: ED₅₀ = 100-150 ng/ml, by the dose-dependent stimulation of the proliferation of balb/c 3T3 cells.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

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<i>large</i>	100 µg	Cat.N°	11343636

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Recombinant Human Fibroblast Growth Factor-19 (rh FGF-19)

Synonyms: none.

Introduction: FGF-19 is a heparin binding growth factor belonging to the FGF family. FGF family members possess broad mitogenic and cell survival activities, and are involved in a variety of biological processes, including embryonic development, cell growth, morphogenesis, tissue repair, tumor growth and invasion. FGF-19, has been shown to cause resistance to diet-induced obesity and insulin desensitization and to improve insulin, glucose, and lipid profiles in diabetic rodents. Since these effects, at least in part, are mediated through the observed changes in metabolic rates, FGF-19 can be considered as a regulator of energy expenditure.

Description: Recombinant human Fibroblast Growth Factor-19 produced in E.Coli is a single, non-glycosylated polypeptide chain containing 195 amino acids and having a molecular mass of 21.8 kDa. The rh FGF-19 is purified by chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: lyophilized from 0.2 µm filtered solution in 25 mM Na₂HPO₄, 300mM NaCl, pH 8

Solubility: It is recommended to reconstitute the lyophilized rh FGF-19 in sterile water not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh FGF-19, although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh FGF-19 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95% (verified by SDS-PAGE / silver stain)

Amino Acid Sequence: MRPLAFSDAG PHVHYGWGDP IRLRHLYTSG PHGLSSCFLR IRADGVVDCA RGQSAHSLE IKAVALRTVA IKGVHSVRYL CMGADGKMQG LLQYSEEDCA FEEEIRPDGY NVYRSEKHRL PVSLSSAKQR QLYKNRGFLP LSHFLPMLPM VPEEPEDLRG HLESDMFSSP LETDSMDPFG LVTGLEAVRS PSFEK

Biological Activity: Determined by the dose dependent proliferation of mouse BALB/3T3 cells the ED50 is 100 – 150 ng/ml.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

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<i>small</i>	5 µg	Cat.N°	11345020
<i>medium</i>	25 µg	Cat.N°	11345024
<i>large</i>	100 µg	Cat.N°	11345026
<i>x-large</i>	500µg	Cat.N°	11345027

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Recombinant Human Flt3-Ligand (rh Flt3L / CD135)

Synonyms: Fms- related tyrosine kinase 3 ligand, Stem Cell Tyrosine Kinase 1, STK1

Introduction: 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.

Description: Recombinant human Flt3-Ligand produced in E.Coli is a non-glycosylated, polypeptide chain containing 155 amino acids and having a molecular mass of 17.6 kDa. The rh Flt3-Ligand is purified by proprietary chromatographic techniques.

Source: Escherichia Coli.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: lyophilized from a 0.22 µm filtered solution in PBS pH 7.4, The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh Flt3-Ligand in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh Flt3-Ligand although stable at room temperature for 3 weeks, should be stored desiccated below -18° C . Upon reconstitution rh Flt3-Ligand should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE / silver stain.

Amino acid Sequence: TQDCSFQHSP ISSDFAVKIR ELSDYLLQDY PVTVASNLQD EELCGGLWRL VLAQRWMERL KTVAGSKMQG LLERVNTEIH FVTKCAFQPP PSCLRFVQTN ISRLLQETSE QLVALKPWIT RQNFSRCLEL QCQPDSSTLP PPWSPRPLEA TAPTA

Biological Activity: The ED50 range is 0.5 - 1.0 ng/ml measured by its ability to promote proliferation of Flt3-transfected murine 32D cells.

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method

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<i>small</i>	2 µg	Cat.N°	11343302
<i>medium</i>	10 µg	Cat.N°	11343303
<i>large</i>	50 µg	Cat.N°	11343305
<i>x-large</i>	250 µg	Cat.N°	11343307
<i>xx-large</i>	1000 µg	Cat.N°	11343308

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Recombinant Human Galectin-7 His tagged (rh GAL-7His)

Synonyms: HKL-14, PI7, p53-induced gene 1 protein, LGALS7, PIG1, LGALS7B, GAL7, LGALS7A.

Introduction: Galectins are a family of animal lectins with an affinity for beta-galactosides. This family has at least 14 identified members. Galectins share similarities in the CRD (the carbohydrate recognition domain). Galectins are synthesized as cytosolic proteins. Though localized principally in the cytoplasm and lacking a classical signal peptide, galectins can also be stimulated to secretion by non-classical pathways or alternatively targeted to the nucleus. Galectins are involved in modulating cell-cell and cell-matrix interactions. Human Galectin-7 belongs to the prototypical Galectins containing a single CRD, which is initially identified in human epidermis as a monomer. The Galectin-7 expression is induced by tumor suppressor protein p53 and associated with apoptosis. Galectin-7 is a pro-apoptotic protein which functions intracellularly upstream of JNK activation and mitochondrial cytochrome c release. The correlation of Galectin-7 with the UV-induced apoptosis of keratinocytes presents a critical mechanism in the maintenance of epidermal homeostasis. Human Galectin-7 is localized in both nucleus and cytoplasm.

Description: Recombinant human Galectin-7 fused with a 20 amino acid His tag at N-terminus produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 156 amino acids (1-136 a.a.) and having a molecular mass of 17.2kDa.

The Galectin-7 is purified by proprietary chromatographic techniques.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.2µm filtered solution in 50mM Tris-HCl buffer (pH 8.0)

Solubility: It is recommended to reconstitute the lyophilized rh GAL-7His in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh GAL-7 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution Galectin-7 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino Acid: MGSSHHHHHH SSGLVPRGSH MSNVPHKSSL PEGIRPGTVL RIRGLVPPNA SRFHVNLLCG EEQGSDAALH FNPRLDTSEV VFNSKEQGSW GREERGPGVP FQRGQPFEVL IASDDGFKA VVGDAQYHHF RHRLPLARVR LVEVGGDVQL DSVRIF.

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method

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<i>small</i>	5 µg	Cat.N°	11345240
<i>medium</i>	20 µg	Cat.N°	11345244
<i>large</i>	100 µg	Cat.N°	11345246
<i>x-large</i>	500 µg	Cat.N°	11345247

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Recombinant Human Granulocyte Colony Stimulating Factor (rh G-CSF)

Synonyms: CSF-3, MGI-1G, GM-CSF beta, Pluripoietin, Filgrastim, Lenograstim

Introduction: G-CSF is a cytokine that controls the production, differentiation and function of granulocytes. The active protein is found extracellularly. Three transcript variants encoding three different isoforms have been found for this gene. Granulocyte/ macrophage colony-stimulating factors are cytokines that act in hematopoiesis by controlling the production, differentiation and function of 2 related white cell populations of the blood, the granulocytes and the monocytes- macrophages. This CSF induces granulocytes.

Description: Recombinant human G-CSF produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 174 amino acids and having a molecular mass of 18.7 kDa. rh G-CSF is purified by proprietary chromatographic techniques.

Source: Escherichia Coli

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilised from a 0.2 µm filtered solution in 25 mM sodium phosphate, 200 mM NaCl, pH 7.5. The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh G-CSF in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh G-CSF although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh G-CSF should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95.0% as determined by SDS-PAGE.

Amino Acid Sequence: TPLGPASSLP QSFLKCLE QVRKIQGDGA ALQEKLCATY KLCHPEELVL
LGHSLGIPWA PLSSCPSQAL QLAGCLSQLH SGLFLYQGLL QALEGISPEL GPTLDTLQLD
VADFATTIWQ QMEELGMAPA LQPTQGAMPA FASAFQRRAG GVLVASHLQS FLEVSRYRLR HLAQP

Biological Activity: Calculated by the dose-dependant proliferation of murine NFS-60 indicator cells the ED₅₀ is < 0.1 ng/ml.

Endotoxin: The endotoxin level is less than 1 EU / µg determined by LAL method.

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<i>small</i>	2 µg	Cat.N°	11343132
<i>medium</i>	10 µg	Cat.N°	11343133
<i>large</i>	50 µg	Cat.N°	11343135
<i>x-large</i>	250 µg	Cat.N°	11343137
<i>xx-large</i>	1000 µg	Cat.N°	11343138

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Recombinant Human Growth Differentiation Factor 5 active (rh GDF-5 active / BMP-14 active)

Synonyms: Cartilage-derived morphogenetic protein-1, CDMP-1, LAP4, SYNS2, Radotermin, BMP-14.

Introduction: GDF-5 is a member of the bone morphogenetic protein (BMP) family and the TGF-beta superfamily. This group of proteins is characterized by a polybasic proteolytic processing site which is cleaved to produce a mature protein containing seven conserved cysteine residues. The members of this family are regulators of cell growth and differentiation in both embryonic and adult tissues. Mutations in this gene are associated with acromesomelic dysplasia, Hunter-Thompson type; brachydactyly, type C; and chondrodysplasia, Grebe type. These associations confirm that the gene product plays a role in skeletal development.

Description: Recombinant human GDF-5 produced in E.Coli is a homodimer, non-glycosylated, polypeptide chain containing 2 x 120 amino acids and having a total molecular mass of 27.4kDa. To enable bacterial expression of rhGDF-5 the N-terminal sequence Ala-Pro-Leu-Thr was replaced with a Lys. RhGDF-5 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: The protein was lyophilized from a 0.2µm filtered concentrated solution in 100 mM acetic acid.

Solubility: It is recommended to reconstitute the lyophilized rh GDF-5 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized Growth Differentiation Factor 5 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution Growth Differentiation Factor-5 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95% (verified by SDS-PAGE / silver stain)

Amino acid sequence: SLGSLTIAEP AMIAECKTRT EVFEISRRLI DRTNANFLVW PPCVEVQRCS
GCCNNRNVQC RPTQVQLRPV QVRKIEIVRK KPIFKKATVT LEDHLACKCE TVAAARPVT

Biological Activity: ED₅₀ = 10-20ng/ml, determined by the induction of alkaline phosphatase activity in ATDC5 cells

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

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<i>small</i>	10 µg	Cat.N°	11343953
<i>medium</i>	50 µg	Cat.N°	11343955
<i>large</i>	250 µg	Cat.N°	11343957
<i>x-large</i>	1000 µg	Cat.N°	11343958

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Recombinant Human Granulocyte Macrophage Colony Stimulating Factor (rh GM-CSF)

Synonyms: CSF-2, MGI-1GM, GM-CSF, Pluripoietin-alpha, Molgramostin, Sargramostim.

Introduction: GMCSF is a cytokine that controls the production, differentiation and function of granulocytes and macrophages. The active form of the protein is found extracellularly as a homodimer. GM-CSF has been localized to a cluster of related genes at chromosome region 5q31, which is known to be associated with interstitial deletions in the 5q- syndrome and acute myelogenous leukemia. Other genes in the cluster include those encoding Interleukins 4, 5, and 13. GM-CSF stimulates the growth and differentiation of hematopoietic precursor cells from various lineages, including granulocytes, macrophages, eosinophils and erythrocytes.

Description: Recombinant human GM-CSF produced in *E.Coli* is a single, non-glycosylated, polypeptide chain containing 127 amino acids and having a molecular mass of 14477 Dalton. rh GM-CSF is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: lyophilized from a 0.22 µm filtered solution in 25 mM Sodiumphosphate, 200 mM NaCl, pH 7.5. The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery.

Solubility: It is recommended to reconstitute the lyophilized rh GM-CSF in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh GM-CSF should be stored desiccated below -18° C. Upon reconstitution rh GM-CSF should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95.0% as determined by SDS-PAGE (silver stain).

Amino Acid Sequence: MAPARSPSPS TQPWEHVNAI QEARRLLNLS RDAAEMNET VEVISEMFDL QEPTCLQTRL ELYKQGLRGS LTKLKGPLTM MASHYKQHCP PTPETSCATQ IITFESFKEN KDFLLVIPF DCWEPVQE

Biological Activity: Tested by its ability to promote proliferation of human TF-1 cells the specific activity is 0.9 x 10⁷ IU/mg.

Endotoxin: The endotoxin level is less than 1 EU / µg determined by LAL method

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<i>small</i>	2 µg	Cat.N°	11343122
<i>medium</i>	10 µg	Cat.N°	11343123
<i>large</i>	50 µg	Cat.N°	11343125
<i>x-large</i>	250 µg	Cat.N°	11343127
<i>xx-large</i>	1000 µg	Cat.N°	11343128

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Recombinant Human Growth Regulated Protein-alpha (rh GRO- α / CXCL1)

Synonyms: Melanoma growth stimulatory activity (MGSA), Neutrophil-activating protein 3 (NAP-3), GRO-alpha(1-73), chemokine (C-X-C motif) ligand 1, SCYB1.

Introduction: GROalpha is a small cytokine belonging to the CXC chemokine family. It is secreted by human melanoma cells, has mitogenic properties and is implicated in melanoma pathogenesis. GROalpha is expressed by macrophages, neutrophils and epithelial cells and has neutrophil chemoattractant activity. GROalpha plays a role in spinal cord development by inhibiting the migration of oligodendrocyte precursors and is involved in the processes of angiogenesis, inflammation, wound healing and tumorigenesis. It elicits its effects by signaling through the chemokine receptor CXCR2. The gene for GROalpha is located on human chromosome 4 amongst genes for other CXC chemokines.

Description: Recombinant human GRO- α produced in E.Coli is a single, non-glycosylated polypeptide chain containing 73 amino acids and having a molecular mass of 7811 Dalton. rh GRO- α is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.2 μ m filtered solution in 20mM PB, pH 7.4, 50mM NaCl. The samples of 1 μ g contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh GRO- α in sterile 18M Ω -cm H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh GRO- α although stable at room temperature for 3 weeks, should be stored desiccated below -18° C . Upon reconstitution rh GRO- α should be stored at 4° C between 2-7 days and for future use below -18°. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 97.0% as determined by RP-HPLC and by SDS-PAGE.

Amino acid sequence: The sequence of the first five N-terminal amino acids was determined and was found to be Ala-Ser-Val-Ala-Thr.

Endotoxicity: The endotoxin level is less than 1 EU / μ g determined by LAL method.

Biological Activity: Determined by its ability to chemoattract human neutophils cells using a concentration range of 10.0 - 100.0ng/ml.

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<i>small</i>	5 μ g	Cat.N°	11343700
<i>medium</i>	25 μ g	Cat.N°	11343704
<i>large</i>	100 μ g	Cat.N°	11343706
<i>x-large</i>	500 μ g	Cat.N°	11343707

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Recombinant Human Hepatocyte Growth Factor (rh HGF)

source HEK-293T

Synonyms: Scatter Factor (SF)

Description: HGF is a mesenchymally derived potent mitogen for mature parenchymal hepatocyte cells and acts as 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 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 and synergizes with Interleukin-3 and GM-CSF to stimulate colony formation of hematopoietic progenitor cells in vitro and may, therefore also modulate hematopoiesis.

Description: Recombinant human Hepatocyte Growth Factor produced in HEK cells is a heterodimer polypeptide precursor glycoprotein consisting of two polypeptide chains (α -chain and β -chain) held 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.

Source: HEK-293T (human embryonic kidney cells)

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.2 μ m filtered solution in 25 mM sodium phosphate, 500 mM NaCl, pH 6.0. The aliquots of 1 μ g and 2 μ g contain Trehalose 5% (w/vol) for better recovery.

Reconstitution: The lyophilized human HGF is soluble in water and most aqueous buffers. The lyophilized powder can be reconstituted in water to a concentration of 100 μ g/ml. Further dilutions should be made into buffer containing protein or medium containing serum.

Stability: The lyophilized HGF, though stable at room temperature, is best stored desiccated below 0°C. Reconstituted should be stored in working aliquots at -20°C to -70°C. Avoid repeated freeze-thaw cycles!

Purity: 95% by SDS-PAGE and visualised by silver stain.

Amino Acid Sequence: *Alpha chain:* QRKRRNTIHE FKSAKTTLI KIDPALKIKT KKVNTADQCA NRCTRNGLP FTCKAFVFDK ARKQCLWFPF NSMSSGVKKE FGHEFDLYEN KDYIRNCIIG KGRSYKGTVS ITKSGIKCQP WSSMIPHEHS FLPSSYRGKD LQENYCRNPR GEEGPPWCFT SNPEVRYEVC DIPQCSEVEC MTCNGESYRG LMDHTESGKI CQRWDHQTPH RHKFLPERYP DKGFDNCR NPDPGQRPWC YTLDPHTRWE YCAIKTCADN TMNDTDVPLE TTECIQQGE GYRGTVNTIW NGIPCQRWDS QYPHEHDMTP ENFKCKDLRE NYCRNPDGSE SPWCFTTDPN IRVGYCSQIP NCDMSHGQDC YRGNKNYMG NLSQTRSGLT CSMWDKNMED LHRHIFWEPD ASKLNENYCR NPDDDAHGPW CYTGNPLIPW DYCPISRCEG DTTPTIVNLD HPVISCATK QLR

Beta chain: VVNGIPTRTN IGWMVSLRYR NKHICGGLI KESWVLTARQ CFPSRDLKDY EAWLGIHDVH GRGDEKCKQV LNVSQLVYGP EGSDLVLMKL ARPAVLDDFV STIDLPNYGC TPEKTSV YGWGYTGLIN YDGLLRVAHL YIMGNEKCSQ HHRGKVTLINE SEICAGAEKI GSGPCEGDYD GPLVCEQHKM RMVLGVIVPG RGCAIPNRPG IFVRVAYYAK WIHKILTYK VPQS

Endotoxin: The endotoxin level is less than 1 EU / μ g determined by LAL method

Biological Activity: The ED₅₀ determined by dose dependent scattering of MDCK cells was 0.5 - 2 ng/ml.

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<i>small</i>	2 μ g	Cat.N°	11343412
<i>medium</i>	10 μ g	Cat.N°	11343413
<i>large</i>	50 μ g	Cat.N°	11343415
<i>x-large</i>	250 μ g	Cat.N°	11343417
<i>xx-large</i>	1000 μ g	Cat.N°	11343418

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Recombinant Human Interferon Gamma (rh IFN-gamma)

Synonyms: Immune Interferon, Type II Interferon, T cell Interferon, MAF, IFG, IFI

Introduction: IFN-gamma produced by lymphocytes activated by specific antigens or mitogens. IFN-gamma, in addition to having antiviral activity, has important immunoregulatory functions, it is a potent activator of macrophages and has antiproliferative effects on transformed cells and it can potentiate the antiviral and antitumor of the type I interferons.

Description: Recombinant human IFN-gamma produced in *E. Coli* is a single, non-glycosylated, polypeptide chain containing 144 amino acids and having a molecular mass of 16.9 kDa. The rh IFN-gamma is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 25mM sodium phosphate, 200 mM NaCl, pH 7.5, The aliquots of 1µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IFN-gamma in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IFN-gamma although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IFN-gamma should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino Acid Sequence: MQDPYVKEAENLKQYFNAGH SDVADNGTLFLGILKNWKEE
SDRKIMQSQIVSFYFKLFKN FKDDQSIQKSVETIKEDMNV KFFNSNKKKRDDFEKLTNYS
VTDLNVQRKAIHELIVMAE LSPAAGTGKRKRSQMLFRGR RASQ

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method

Biological Activity: The specific activity as determined in a viral resistance assay is < 0.05 ng/ml, corresponding to a specific activity of 2.0 x 10⁷ IU/mg.

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<i>small</i>	20 µg	Cat.N°	11343534
<i>medium</i>	100 µg	Cat.N°	11343536
<i>large</i>	500 µg	Cat.N°	11343537

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Recombinant Human Insulin-Like Growth Factor I (rh IGF-1)

Synonyms: Somatomedin C, , IGF-I, IGF1, IGF-IA, Mechano growth factor, MGF.

Introduction: The somatomedins or insulin-like growth factors (IGFs) comprise a family of peptides that play important roles in mammalian growth and development. IGF-1 mediates many of the growth-promoting effects of growth hormone (GH; MIM 139250). Early studies showed that growth hormone did not directly stimulate the incorporation of sulfate into cartilage, but rather acted through a serum factor, termed 'sulfation factor' which later became known as 'somatomedin' (Daughaday et al., 1972). Three main somatomedins have been characterized: somatomedin C (IGF-1), somatomedin A (IGF-2; MIM 147470), and somatomedin B (MIM 193190) (Rotwein, 1986; Rosenfeld, 2003).

Description: Recombinant human IGF-1 produced in *E.Coli* is a single, non-glycosylated, polypeptide chain containing 70 amino acids and having a molecular mass of 7.6 kDa. IGF-1 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: The protein was lyophilized from a 0.2µm filtered concentrated solution in PBS, pH 7.4.

Solubility: It is recommended to reconstitute the lyophilized rh IGF-1 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IGF-1 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IGF-1 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino Acid Sequence: GPETLCGAEL VDALQFVCGD RGFYFNKPTG YGSSSRAPQ TGIVDECCFR SCDLRRLEMY CAPLKPAKSA.

Biological Activity: The ED50 as determined by a cell proliferation assay using murine NIH-3T3 cells is less than 1.0 ng/ml, corresponding to a specific activity of > 1×10⁶ units/mg.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

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<i>small</i>	20 µg	Cat.N°	11343314
<i>medium</i>	100 µg	Cat.N°	11343316
<i>large</i>	500 µg	Cat.N°	11343317

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Recombinant Human Insulin Like Growth Factor-II (rh IGF-II)

Synonyms: Somatomedin-A, IGF2, INSIGF, pp9974, C11orf43

Introduction: IGF-II is a member of the insulin family of polypeptide growth factors that is involved in development and growth. It is an imprinted gene and is expressed only from the paternally inherited allele and is a candidate gene for eating disorders. There is a read-through which aligns to IGF-II at the 3' region and to the upstream INS gene at the 5' region. Two alternatively spliced transcript variants encoding the same protein have been found for this gene.

Description: Recombinant human IGF-II produced in *E.Coli* is a single, non-glycosylated, polypeptide chain containing 67 amino acids and having a molecular mass of 7505 Dalton. rh IGF-II is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: The protein was lyophilized from a 0.2µm filtered concentrated solution in PBS. The aliquots/samples of 1µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IGF-II in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IGF-II although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IGF-II should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino Acid Sequence: AYRPSETLCG GELVDTLQFV CGDRGFYFSR PASRVSRRSR GIVEECCFRS
CDLALLETYC ATPAKSE

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Biological Activity: The ED50, calculated by the dose-dependent induction of MCF-7 cell proliferation was found to be 0.85ng/ml.

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<i>small</i>	10 µg	Cat.N°	11343573
<i>medium</i>	50 µg	Cat.N°	11343575
<i>large</i>	250 µg	Cat.N°	11343577
<i>x-large</i>	1000 µg	Cat.N°	11343578

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Recombinant Human Interleukin-1 alpha (rh IL-1a)

Synonyms: Hematopoietin-1, Lymphocyte-activating factor (LAF), Endogenous Pyrogen (EP), Leukocyte Endogenous Mediator (LEM), Mononuclear Cell Factor (MCF), IL1F1

Introduction: IL-1 alpha is produced by activated macrophages, stimulates thymocyte proliferation by inducing IL-2 release, b- cell maturation and proliferation and fibroblast growth factor activity. IL-1alpha proteins are involved in the inflammatory response, being identified as endogenous pyrogens and are reported to stimulate the release of prostaglandin and collagenase from synovial cells.

Description: Recombinant human IL-1alpha produced in *E. Coli* is a non-glycosylated, polypeptide chain containing 159 amino acids and having a molecular mass of 18 kDa. The rh IL-1alpha is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile Filtered White lyophilized (freeze-dried) powder.

Formulation: lyophilized from a 0.22 µm filtered solution in 50 mM Tris, 200 mM NaCl, pH 8.0
The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-1alpha in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-1alpha although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-1alpha should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE / silver stain.

Amino acid sequence: SAPFSFLSNV KYNFMRIKY EFILNDALNQ SIIRANDQYL TAAALHNLDE
AVKFDMGAYK SSKDDAKITV ILRISKTKLY VTAQDEDQPV LKEMPEIPK TITGSETNLL FFWETHGTKN
YFTSVAHPNL FIATKQDYWV CLAGGPPSIT DFAQILENQA

Biological Activity: The ED₅₀ as tested by IL-1alpha induced proliferation of murine D10G4.1 cells is < 0.001 ng/ml, corresponding to a specific activity of 1 x 10⁹ IU/mg.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method

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<i>small</i>	2 µg	Cat.N°	11349012
<i>medium</i>	10 µg	Cat.N°	11349013
<i>large</i>	50 µg	Cat.N°	11349015
<i>x-large</i>	250 µg	Cat.N°	11349017
<i>xx-large</i>	1000 µg	Cat.N°	11349018

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Recombinant Human Interleukin-1 beta (rh IL-1b)

Synonyms: Catabolin, Lymphocyte-activating factor (LAF), Endogenous Pyrogen (EP), Leukocyte Endogenous Mediator (LEM), Mononuclear Cell Factor (MCF), IL1F2.

Introduction: Interleukin-1b is produced by activated macrophages, IL-1b stimulates thymocyte proliferation by inducing IL-2 release, b-cell maturation and proliferation and fibroblast growth factor activity. IL-1b proteins are involved in the inflammatory response being identified as endogenous pyrogens and are reported to stimulate the release of prostaglandin and collagenase from synovial cells.

Description: Recombinant human IL-1 beta produced in *E. Coli* is a non-glycosylated, polypeptide chain containing 153 amino acids and having a molecular mass of 17 kDa. The rh IL-1beta is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22µm filtered solution in 25 mM Phosphate buffer, 100 mM NaCl, pH 7.1. The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-1beta in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-1beta although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-1beta should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95.0% as determined by SDS-PAGE / silver stain.

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method

Amino acid sequence: APVRSLNCTL RDSQQKSLVM SGPYELKALH LQGQDMEQQV
VFSMSFVQGE ESNDKIPVAL GLKEKNLYLS CVLKDDKPTL QLESVDPKNY PKKKMEKRFV FNKIEINNKL
EFESAQFPNW YISTSQAENM PVFLGGTKGG QDITDFTMQF VSS

Biological Activity: The specific activity as determined in the test of augmentation of lymphocyte proliferation assay using mouse thymus was found to be 2.0 x 10⁸ IU/ mg.

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<i>small</i>	2 µg	Cat.N°	11340012
<i>medium</i>	10 µg	Cat.N°	11340013
<i>large</i>	50 µg	Cat.N°	11340015
<i>x-large</i>	250 µg	Cat.N°	11340017
<i>xx-large</i>	1000 µg	Cat.N°	11340018

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Recombinant Human Interleukin-1 Receptor Antagonist (rh IL-1RA / IL1F3)

Synonyms: IRAP, ICIL-1RA, IL1RN, IL1 inhibitor,

Introduction: Interleukin-1 ra is a member of the Interleukin 1 cytokine family. This protein inhibits the activities of Interleukin-1alpha (IL-1a) and Interleukin-1beta (IL-1b) and modulates a variety of Interleukin-1 related immune and inflammatory responses. This gene and five other closely related cytokine genes form a gene cluster spanning approximately 400 kb on chromosome 2. A polymorphism of this gene is reported to be associated with increased risk of osteoporotic fractures and gastric cancer. Four alternatively spliced transcript variants encoding distinct isoforms have been reported.

Description: Recombinant human Interleukin-1 Receptor antagonist produced in E.Coli is a non-glycosylated, N-terminal methionyl form of the human naturally-occurring polypeptide chain containing 153 amino acids and having a molecular mass of 17.0 kDa.
The IL1ra is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: lyophilized with no additives.
The samples of 1µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-1ra in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-1ra, although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-1ra should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Amino acid sequence: The sequence of the first five N-terminal amino acids was determined and was found to be Met-Arg-Pro-Ser-Gly.

Biological Activity: The ED50 as determined by the dose-dependant inhibition of IL-1 stimulation of D10S cells was found to be 0.5 ng/ml corresponding to a specific activity of 2x 10⁶ IU/mg.

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<i>small</i>	20 µg	Cat.N°	11344874
<i>medium</i>	100 µg	Cat.N°	11344876
<i>large</i>	500 µg	Cat.N°	11344877

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Recombinant Human Interleukin-2 (rh IL-2)

Synonyms: T-cell growth factor (TCGF), Aldesleukin, Lymphokine

Introduction: IL-2 is a secreted cytokine that is important for the proliferation of T and B lymphocytes. The receptor of this cytokine is a heterotrimeric protein complex whose gamma chain is also shared by Interleukin 4 and Interleukin 7. The expression of this gene in mature thymocytes is monoallelic which represents an unusual regulatory mode for controlling the precise expression of a single gene. The targeted disruption of a similar gene in mice leads to ulcerative colitis-like disease which suggests an essential role of this gene in the immune response to antigenic stimuli.

Description: Recombinant human IL-2 produced in *E. Coli* is a single, non-glycosylated polypeptide chain containing 134 amino acids and having a molecular mass of 15.5 kDa. The rh IL-2 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilised from a 0.22 µm filtered solution in 25 mM sodium phosphate, 500mM NaCl, pH 5.5. The aliquots/samples of 1µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to spin down before reconstitution. Reconstitute the lyophilized rh IL-2 in sterile water to a concentration not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-2 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-2 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE Silver stain.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Amino acid Sequence: MAPTSSSTKK TQLQLEHLLL DLQMILNGIN NYKNPKLTRM LTFKFYMPKK
ATELKHQCL EEELKPLEEV LNLAQSKNFH LRPRDLISNI NVIVLELKGS ETTFMCEYAD ETATIVEFLN
RWITFCQSII STLT

Biological Activity: Determined by dose dependent stimulation of proliferation of murine CTLL-2 cells the specific activity is of 1×10^7 IU/mg.

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<i>small</i>	10 µg	Cat.N°	11340023
<i>medium</i>	50 µg	Cat.N°	11340025
<i>large</i>	250 µg	Cat.N°	11340027
<i>x-large</i>	1000 µg	Cat.N°	11340028

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Recombinant Human Interleukin-3 (rh IL-3)

Synonyms: MCGF (Mast cell growth factor), Multi-CSF, HCGF, P-cell stimulation factor

Introduction: Rh IL-3 is a potent growth promoting cytokine. This cytokine is a species specific colony stimulating factor which stimulates colony formation of megakaryocytes, neutrophils, and macrophages from bone marrow cultures. 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. It is involved in a variety of cell activities such as cell growth, differentiation and apoptosis. IL-3 has been also shown to possess neurotrophic activity and may be associated with neurologic disorders.

Description: Recombinant Human IL-3 produced in *E.Coli* is a single, non-glycosylated polypeptide chain containing 133 amino acids and having a molecular mass of 15 kDa. The rh IL-3 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: lyophilized from a sterile 0.2µm filtrated solution in 50mM NaCl, pH 7.4. The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-3 in sterile H₂O not less than 100 µg/ml which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-3 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C . Upon reconstitution rh IL-3 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method

Amino Acid Sequence: APMTQTTPK TSWVNCNMI DEIITHLKQP PLPLDFNNL NGEDQDILME NNLRRPNLEA FNRAVKSLQN ASAIESILKN LLPCLPLATA APTRHPIHIK DGDWNEFRRK LTFYLKLTLEN AQAQQTTLSL AIF

Biological Activity: The ED₅₀ as determined by the dose-dependant stimulation of TF-1 cells is < 0.1 ng/ml.

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<i>small</i>	2 µg	Cat.N°	11340032
<i>medium</i>	10 µg	Cat.N°	11340033
<i>large</i>	50 µg	Cat.N°	11340035
<i>x-large</i>	250 µg	Cat.N°	11340037
<i>xx-large</i>	1000 µg	Cat.N°	11340038

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Recombinant Human Interleukin-4 (rh IL-4)

Synonyms: BCGF, BCDF, B cell stimulating factor, BSF-1, Lymphocyte stimulatory factor 1

Introduction: rh IL-4 is a pleiotropic cytokine produced by activated T cells. IL-4 is a ligand for Interleukin 4 receptor. The Interleukin 4 receptor also binds to IL-13 which may contribute to many overlapping functions of this cytokine and IL-13. STAT6, a signal transducer and activator of transcription, has been shown to play a central role in mediating the immune regulatory signal of this cytokine. This gene, IL-3, IL-5, IL-13 and GM-CSF form a cytokine gene cluster on chromosome 5q, with this gene particularly close to IL-13. IL-4, IL-13 and IL-5 are found to be regulated coordinately by several long-range regulatory elements in an over 120 kilobase range on the chromosome. Two alternatively spliced transcript variants of this gene encoding distinct isoforms have been reported.

Description: Recombinant human IL-4 produced in *E. Coli* is a single, non-glycosylated polypeptide chain containing 130 amino acids and having a molecular mass of 15 kDa. The rh IL-4 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: 0.22 µm filtered solution in 25 mM sodium phosphate, 200 mM NaCl, pH 6.5
The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-4 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-4 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-4 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method

Amino acid sequence: MHKCDITLQE IIKTLNSLTE QKTLCTELTV TDIFAASKNT TEKETFCAA
TVLRQFYSHH EKDTRCLGAT AQQFHRHKQLIRFLKRLDRN LWGLAGLNSC PVKEANQSTL ENFLERLKI
MREKYSKCSS

Biological Activity: The specific activity is > 23.0 x 10⁶ IU/mg.

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<i>small</i>	2 µg	Cat.N°	11340042
<i>medium</i>	10 µg	Cat.N°	11340043
<i>large</i>	50 µg	Cat.N°	11340045
<i>x-large</i>	250 µg	Cat.N°	11340047
<i>xx-large</i>	1000 µg	Cat.N°	11340048

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Recombinant Human Interleukin-5 (rh IL-5)

Synonyms: T-cell replacing factor (TRF), Eosinophil differentiation factor (EDF), B cell differentiation factor II (BCDFII)

Introduction: The protein encoded by this gene is a cytokine that acts as a growth and differentiation factor for both B cells and eosinophils. Interleukin 5 is a main regulator of eosinopoiesis, eosinophil maturation and activation. The elevated production of IL-5 is reported to be related to asthma or hypereosinophilic syndromes. The receptor of IL-5 is a heterodimer whose beta subunit is shared with the receptors for Interleukine 3 and colony stimulating factor 2 (GM-CSF). This gene, together with those for Interleukin 4, Interleukin 13 and GM-CSF form a cytokine gene cluster on chromosome 5. IL-5, IL-4 and IL-13 are found to be regulated coordinately by long-range regulatory elements spread over 120 kilobases on chromosome 5q31.

Description: Recombinant human IL-5 produced in *E. Coli* is a single, non-glycosylated polypeptide chain containing 113 amino acids and having a molecular mass of 26.5 kDa. The rh IL-5 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in sodium phosphate, pH 8.0
The aliquotes of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-5 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-5 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rh IL-5 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSS or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Amino acid sequence: IPTEIPTSAL VKETLALLST HRTLLIANET LRIPVPVHKN HQLCTEEIFQ GIGTLESQTV QGGTVERLFK NLSLIKYYID GQKKKCGEER RRVNQFLDYL QEFLGVMNTE WIIES

Biological Activity: The ED₅₀ as determined by the dose-dependant stimulation of the proliferation of TF-1 cells was found to be < 0.15ng/ml, corresponding to a specific activity of 6x 10⁶ IU/mg.

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<i>small</i>	2 µg	Cat.N°	11340052
<i>medium</i>	10 µg	Cat.N°	11340053
<i>large</i>	50 µg	Cat.N°	11340055
<i>x-large</i>	250 µg	Cat.N°	11340057
<i>xx-large</i>	1000 µg	Cat.N°	11340058

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Recombinant Human Interleukin 6 (rh IL-6)

Synonyms: B cell differentiation factor (BCDF), HSF, MGI-2, B-cell stimulatory factor 2 (BSF-2), Hybridoma growth factor (HPGF), CTL differentiation factor (CDF)

Introduction: IL-6 is a pleiotropic cytokine that plays important roles in acute phase reaction, antigen specific immune responses and hematopoiesis. Main sources of Interleukin-6 are monocytes, T-cells, fibroblasts and endothelial cells. IL-6 is a major mediator of acute phase reaction, it functions as B-cell differentiation factor (BCDF) and induces the proliferation of thymocytes. Moreover it has neurotrophic activity on certain neuronal cell types. IL-6 is also known to act as autocrine growth modulator of some tumor types.

Description: Recombinant human IL-6 produced in *E.Coli* is a variably glycosylated polypeptide chain containing 185 amino acids with alpha-helical structure and having a molecular mass of 21 kDa. The rh IL-6 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilised from a 0.22 µm filtered carrier free solution in PBS pH 7.5 containing 0.25 M NaCl. The aliquots of 1 µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-6 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-6 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-6 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method

Amino acid sequence:

MPVPPGEDSKDVAAPHRQPLTSSERIDKQIRYILDGISALRKETCNKSNMCESSKEALAENNLNLPKMAEKDGC
FQSGFNEETCLVKIITGLLEFEVYLEYLQNRFESEEQARAVQMSTKVLIQFLQKKAKNLDAITTPDPTTNASLLTK
LQAQNQWLQDMTTHLILRSFKEFLQSSLRALRQM

Biological Activity: The ED₅₀ as determined by the dose-dependant stimulation of murine 7TD1 cells is < 0.1 ng/ml, corresponding to a specific activity of > 0.5x 10⁸ IU/mg.

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<i>small</i>	5 µg	Cat.N°	11340060
<i>medium</i>	20 µg	Cat.N°	11340064
<i>large</i>	100 µg	Cat.N°	11340066
<i>x-large</i>	500 µg	Cat.N°	11340067
<i>xx-large</i>	1000 µg	Cat.N°	11340068

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Recombinant Human Interleukin-7 (rh IL-7)

Synonyms: Lymphopoietin 1 (LP-1), pre-B cell factor.

Introduction: IL-7 is a cytokine important for B and T cell development. This cytokine and the hepatocyte growth factor (HGF) form a heterodimer that functions as a pre-pro-B cell growth-stimulating factor. IL-7 is found to be a cofactor for V(D)J rearrangement of the T cell receptor beta (TCRB) during early T cell development. IL-7 can be produced locally by intestinal epithelial and epithelial goblet cells and may serve as a regulatory factor for intestinal mucosal lymphocytes. Knockout studies in mice suggested that IL-7 plays an essential role in lymphoid cell survival.

Description: Recombinant human IL-7 produced in *E.Coli* is a single, non-glycosylated polypeptide chain containing 153 amino acids and having a molecular mass of 17.4 kDa. The rh IL-7 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 25 mM Sodiumphosphate, 200 mM NaCl, pH 6.5. The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery.

Solubility: It is recommended to reconstitute the lyophilized rh IL-7 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-7 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-7 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE / silver stain.

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method.

Amino acid sequence: MDCDIEGKDG KQYESVLMVS IDQLLDSTMKE IGSNCLNNEF NFFKRHICDA NKEGMFLFRA ARKLRQFLKM NSTGDFDLHL LKVSEGTTIL LNCTGQVKGR KPAALGEAQP TKSLEENKSL KEQKKLNDLC FLKRLLEIK TCWNKILMGT KEH

Biological Activity: The ED₅₀ as determined by the dose-dependant stimulation of murine IXN/2B cells is < 0.5 ng/ml, corresponding to a Specific Activity of 2 x 10⁶ IU/mg.

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<i>small</i>	2 µg	Cat.N°	11340072
<i>medium</i>	10 µg	Cat.N°	11340073
<i>large</i>	50 µg	Cat.N°	11340075
<i>x-large</i>	250 µg	Cat.N°	11340077
<i>xx-large</i>	1000 µg	Cat.N°	11340078

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Recombinant Human Interleukin-8 /1-77a.a. (rh IL-8 /1-77a.a.)

Synonyms: Monocyte-derived neutrophil chemotactic factor, MDNCF, T-cell chemotactic factor, Neutrophil-activating protein 1, NAP-1, Granulocyte chemotactic protein 1, GCP-1, Monocyte-derived neutrophil-activating peptide, MONAP, Emoctakin, K60, NAF, LECT, LUCT, 3-10C, LYNAP, SCYB8, TSG-1, AMCF-I, b-ENAP.

Introduction: Interleukin-8 (IL-8) is a chemokine produced by macrophages and other cell types such as epithelial cells. It is also synthesized by endothelial cells which store IL-8 in their storage vesicles, the Weibel-Palade bodies. When first encountering an antigen the primary cells to encounter it are the macrophages who phagocytose the particle. Upon processing they release chemokines to signal other immune cells to come in to the site of inflammation. IL-8 is one such chemokine. It serves as a chemical signal that attracts neutrophils at the site of inflammation, and therefore is also known as Neutrophil Chemotactic Factor.

Description: Recombinant human IL-8/1-77a.a. produced in *E. Coli* is a single, non-glycosylated, polypeptide chain containing 77 amino acids and having a molecular mass of 8.9 kDa. rh IL-8 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: lyophilized from a 0.22µm filtered solution in 25 mM Sodiumphosphate, pH 6.5. The aliquots/samples of 1µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-8 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-8 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-8 should be stored at 4° C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method

Amino acid sequence: AVLPRSAKEL RCQCIKTYSK PFHPKFIKEL RVIESGPHCA NTEIIVKLSG
GRELCLDPKE NWWQRVVEKF LKRAENS

Biological Activity: rh IL-8/1-77a.a. is fully biologically active - tested by its capability to chemoattract human peripheral neutrophils using a concentration range of 10-100 ng/ml.

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<i>small</i>	5 µg	Cat.N°	11349080
<i>medium</i>	25 µg	Cat.N°	11349084
<i>large</i>	100 µg	Cat.N°	11349086
<i>x-large</i>	500 µg	Cat.N°	11349087
<i>xx-large</i>	1000 µg	Cat.N°	11349088

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Recombinant Human Interleukin-10 (rh IL-10) source *E. coli*

Synonyms: B-TCGF, TGIF, IL10A, Cytokine synthesis inhibitory factor (CSIF).

Introduction: IL-10 is a cytokine produced primarily by monocytes and to a lesser extent by lymphocytes. This cytokine has pleiotropic effects in immunoregulation and inflammation. It down-regulates the expression of Th1 cytokines, MHC class II Ags and costimulatory molecules on macrophages. It also enhances B cell survival, proliferation and antibody production. This cytokine can block NF-kappa B activity and is involved in the regulation of the JAK- SARA signaling pathway. Knockout studies in mice suggested the function of this cytokine as an essential immunoregulator in the intestinal tract.

Human IL-10 active on murine cells, but murine IL-10 is inactive on human cells.

Description: Recombinant human IL-10 produced in *E. coli* is an 18.6 kDa protein of 161 amino acid residues. The rh IL-10 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder. The aliquots of 1 µg and 2 µg contain Trehalose 5% (w/vol) for better recovery.

Formulation: The protein was lyophilized from a sterile 0.2 µm filtrated solution containing 25mM sodium phosphate, pH 6.5 + 200mM NaCl.

Solubility: It is recommended to reconstitute the lyophilized rh IL-10 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-10 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rh IL-10 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino Acid Sequence: MSPGQGTQSE NSCTHFPGNL PNMLRDLRDA FSRVKTFQFM KDQLDNLKLLK
ESLLEDFKGY LGCQALSEMI QFYLEEVMQP AENQDPDIKA HVNSLGENLK TLRLRLRRCH
RFLPCENKSK AVEQVKNAFN KLQEKGIYKA MSEFDIFINY IEAYMTMKIR N

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method

Biological Activity: Determined by its ability to stimulate proliferation of murine MC/9 cells. The ED50 was found to be ≤ 2.0 ng/ml, corresponding to a specific activity of ≥ 5 x 10⁵ IU/mg

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<i>small</i>	2 µg	Cat.N°	11340102
<i>medium</i>	10 µg	Cat.N°	11340103
<i>large</i>	50 µg	Cat.N°	11340105
<i>x-large</i>	250 µg	Cat.N°	11340107
<i>xx-large</i>	1000 µg	Cat.N°	11340108

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Recombinant Human Interleukin-11 (rh IL-11)

Synonyms: AGIF, Adipogenesis Inhibitory Factor, Oprelvekin

Introduction: IL-11 is a member of the Glycoprotein-130 family (gp130) of cytokines. These cytokines drive the assembly of multisubunit receptor complexes which all contain at least one molecule of the transmembrane signaling receptor gp130 (IL-6ST). IL-11 is shown to stimulate the T-cell-dependent development of immunoglobulin-producing B cells. It is also found to support the proliferation of hematopoietic stem cells and megakaryocyte progenitor cells.

Description: Recombinant human IL-11 produced in *E.Coli* is a single, non-glycosylated polypeptide chain containing 179 amino acids and having a molecular mass of 19.25 kDa. The rh IL-11 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in sodium phosphate pH7.5. The aliquotes of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-11 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-11 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rh IL-11 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Amino acid sequence: GPPPGPPRVS PDPRAELDST VLLTRSLLAD TRQLAAQLRD KFPADGDHNL
DSLPTLAMSA GALGALQLPG VLTRLRADLL SYLRHVQWLR RAGGSSLKTL EPELGTLQAR
LDRLLRRLQL LMSRLALPQP PPDPPAPPLA PPSSAWGGIR AAHAILGGLH LTLDWAVRGL LLLKTRL

Biological Activity: The ED₅₀ as determined by the dose-dependant stimulation of the proliferation of murine hybridoma cell line was found to be less than 10 ng/ml, corresponding to a specific activity of ≥ 1x 10⁵ IU/mg

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<i>small</i>	2 µg	Cat.N°	11340112
<i>medium</i>	10 µg	Cat.N°	11340113
<i>large</i>	50 µg	Cat.N°	11340115
<i>x-large</i>	250 µg	Cat.N°	11340117
<i>xx-large</i>	1000 µg	Cat.N°	11340118

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Recombinant Human Interleukin-12HEK (rh IL-12)

Synonyms: NKSF, CTL maturation factor (TCMF), Cytotoxic lymphocyte maturation factor (CLMF), TSF

Introduction: 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.

Description: Recombinant human IL-12 produced in HEK cells is a glycosylated heterodimer having a molecular weight of 57 kDa. The rh IL-12 is purified by proprietary chromatographic techniques.

Source: HEK cells

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: lyophilized from a 0.2 μ m filtered solution in PBS.
The aliquots of 1 μ g and 2 μ g contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-12 in sterile H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-12 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-12 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU / μ g determined by LAL method.

Amino Acid Sequence: RNL PVA TPDPGMFPCL HHSQNLLRAV SNMLQKARQT LEFYPTSEE
IDHEDITKDK TSTVEACLPL ELTKNESCLN SRETSFITNG SCLASRKTSF MMALCLSSII EDLKMVQVEF
KTMNAKLLMD PKRQIFLDQN MLAVIDELMQ ALNFNSETVP QKSSLEEPDF YKTKIKLCIL LHAFRIRAVT
IDRVMSYLSNA S
IWELKK DVYVVVELDWY PDAPGEMVVL TCDTPEEDGI TWTLDQSSEV LGSGKTLTIQ VKEFGDAGQY
TCHKGGEVLS HSLLLLHKKE DGIWSTDILK DQKEPKNKTFRCEAKNYSGRFTCWWLTTI STDLTFSVKS
SRGSSDPQGV TCGAATLSAE RVRGDNKEYE YSVEQCQEDSA CPAAEESLPI EVMVDAVHKL KYENYTSFFF
IRDIIKPDPP KNLQLKPLKN SRQVEVSWEY PDTWSTPHSY FSLTFCVQVQ GKSKREKKDR VFTDKTSATV
ICRKNASISV RAQDRYYSSS WSEWASVPCS

Biological Activity: Determined by dose dependant release of rh IFN-gamma from NK cells in co-stimulation with IL-18 the ED₅₀ was determined to be less than 1 ng/ml, corresponding to a specific activity of 1 x10⁶ IU/mg.

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<i>small</i>	2 μ g	Cat.N°	11349122
<i>medium</i>	10 μ g	Cat.N°	11349123
<i>large</i>	50 μ g	Cat.N°	11349125
<i>x-large</i>	250 μ g	Cat.N°	11349127

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Recombinant Human Interleukin-13 (rh IL-13)

Synonyms: NC30 (human), P600 (murine)

Description: IL-13 is an immunoregulatory cytokine produced primarily by activated Th2 cells. IL-13 is involved in several stages of B-cell maturation and differentiation. It regulates CD23 and MHC class II expression up and promotes IgE isotype switching of B cells. IL-13 regulates macrophage activity down and inhibits thereby the production of pro-inflammatory cytokines and chemokines. IL-13 is found to be critical to the pathogenesis of allergen-induced asthma, but operates through mechanisms independent of IgE and eosinophils. IL-13, IL-3, IL-4, IL-5, and GM-CSF form a cytokine gene cluster on chromosome 5q, with this gene particularly close to IL-4.

Description: Recombinant human IL-13 produced in *E. Coli* is a single, non-glycosylated polypeptide chain containing 114 amino acids and having a molecular mass of 12.5 kDa. The rh IL-13 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 50 mM Tris, 50 mM NaCl, pH 8.0
The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-13 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-13 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-13 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE silver stained gel.

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method

Amino acid sequence: SPGPVPPSTA LRELIEELVN ITQNQKAPLC NGSMVWSINL TAGMYCAALE
SLINVSGCSA IEKTQRMLSG FCPHKVSAGQ FSSLHVRDTK IEVAQFVKDL LLHLKLFRE GQFN

Biological Activity: The ED₅₀ as determined by the dose-dependant proliferation of TF-1 cells is < 1ng/ml, corresponding to a specific activity of >1 x 10⁶ IU/mg.

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<i>small</i>	2 µg	Cat.N°	11340132
<i>medium</i>	10 µg	Cat.N°	11340133
<i>large</i>	50 µg	Cat.N°	11340135
<i>x-large</i>	250 µg	Cat.N°	11340137

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Recombinant Human Interleukin-15 (rh IL-15)

Synonyms: MGC9721.

Introduction: IL-15 regulates T and natural killer cell activation and proliferation. IL-15 and IL-2 share many biological activities. They are found to bind common hematopoietin receptor subunits, may compete for the same receptor and thus negatively regulate each other's activity. The number of CD8+ memory cells is shown to be controlled by a balance between IL-15 and IL-2. IL-15 induces the activation of JAK kinases as well as the phosphorylation and activation of transcription activators STAT3, STAT5, and STAT6. Studies of the mouse counterpart suggested that IL-15 may increase the expression of apoptosis inhibitor BCL2L1/BCL-x(L), possibly through the transcription activation activity of STAT6 and thus prevent apoptosis. Two alternatively spliced transcript variants of this gene encoding the same protein have been reported.

Description: Recombinant human IL-15 produced in *E. Coli* is a single, non-glycosylated polypeptide chain containing 114 amino acids and having a molecular mass of 13007 Dalton. rh IL-15 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: lyophilized from a 0.22 µm filtered solution in 25 mM sodium acetate, 300 mM NaCl, pH 7.5. The aliquots of 1 µg and 2 µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-15 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-15 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C . Upon reconstitution rh IL-15 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95.0% as determined by SDS-PAGE Silver Stained gel.

Endotoxicity: The endotoxin level is less than 0.1 ng per µg (1EU/µg) determined by LAL method

Amino acid sequence: MNWVNVISDL KKIEDLIQSM HIDATLYTES DVHPSCKVTA MKCFLLELQV ISLESGDASI HDTVENLIL ANNSLSSNGN VTESGCKECE ELEEKNIKEF LQSFVHIVQM FINTS

Biological Activity: Tested by its capability to promote proliferation of murine lymphoblast cell line CTLL-2 rh IL-15 has a biological activity of $\geq 8 \times 10^6$ IU/mg

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<i>small</i>	2 µg	Cat.N°	11340152
<i>medium</i>	10 µg	Cat.N°	11340153
<i>large</i>	50 µg	Cat.N°	11340155
<i>x-large</i>	250 µg	Cat.N°	11340157

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Recombinant Human Interleukin-16 (rh IL-16)

Synonyms: LCF, Lymphocyte Chemoattractant Factor, prIL-16

Introduction: IL-16 is a pleiotropic cytokine that functions as chemoattractant, is a modulator of T cell activation and an inhibitor of HIV replication. The signaling process of IL-16 is mediated by CD4. The product of this gene undergoes proteolytic processing, which is found to yield two functional proteins. IL-16 functions exclusively attributed to the secreted C-terminal peptide, while the N-terminal product may play a role in cell cycle control. Caspase 3 is reported to be involved in the proteolytic processing of IL-16. Two transcript variants encoding different isoforms have been found for this gene.

IL-16 stimulates a migratory response in CD4+ lymphocytes, monocytes and eosinophils and induces also T-lymphocyte expression of IL-2 receptor.

Description: Recombinant Interleukin-16 produced in E.Coli is a single, non-glycosylated polypeptide chain containing 130 amino acids and having a molecular mass of 13.5 kDa. The IL-16 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile Filtered White lyophilized (freeze-dried) powder.

Formulation: 0.22 µm filtered solution in 25 mM Sodiumphosphate, 200 mM NaCl, pH 7.8, The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-16 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-16 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C . Upon reconstitution rh IL-16 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE /silver stain.

Endotoxicity: The endotoxin level is less than 0.1 ng per µg (1EU/µg) determined by LAL method

Amino acid sequence: MPDLNSSTDS AASASAASDV SVESTAEATV CTVTLEKMSA GLGFSLEGGK
GSLHGDKPLT INRIFKGAAS EQSETVQPGD EILQLGGTAM QGLTRFEAWN IIKALPDGPV
TIVIRKSLQ SKETTAAGDS

Biological Activity: The rh IL-16 is fully biologically active when compared to reference material (measured by its ability to modulate T-lymphocyte chemotaxis within a concentration range of 10 – 100 ng/ml).

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<i>small</i>	2 µg	Cat.N°	11340162
<i>medium</i>	10 µg	Cat.N°	11340163
<i>large</i>	50 µg	Cat.N°	11340165

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Recombinant Human Interleukin-17A (rh IL-17A)

Synonyms: IL-17, Cytotoxic T-lymphocyte-associated antigen 8 (CTLA-8).

Introduction: IL-17 is a proinflammatory cytokine produced by activated T cells. IL-17 regulates the activities of NF-kappaB and mitogen-activated protein kinases. IL-17 can stimulate the expression of IL-6 and Cyclooxygenase-2 (COX-2) as well as enhance the production of nitric oxide (NO). High levels of IL-17 are associated with several chronic inflammatory diseases including rheumatoid arthritis, psoriasis and multiple sclerosis.

Description: Recombinant human IL-17A produced in *E.Coli* is a homodimeric, non-glycosylated polypeptide chain containing a total of 264 amino acids and having a molecular mass of 30.25 kDa. The rh IL-17A is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 25 mM sodium phosphate, 200 mM NaCl, pH 7.4. The aliquots/samples of 1µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-17A in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-17A although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rh IL-17A should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSS or BSA). Please prevent freeze-thaw cycles.

Purity: 95.0% as determined by SDS-PAGE silver stained gel.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method

Amino Acid Sequence: MIVKAGITIP RNP GCPNSED KNFPRTVMVN LNIHNRNTNT NPKRSSDYNN
RSTSPWNLHR NEDPERYPSV IWEAKCRHLG CINADGNVDY HMNSVPIQQE ILVLRREPPH
CPNSFRLEKI LVS VGCTCVT PIVHHVA

Biological Activity: The biological activity of rec. human IL-17A was tested by dose dependant stimulation of IL-6 secretion on human fibroblasts. The specific activity is $\geq 5 \times 10^5$ IU/mg.

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<i>small</i>	5 µg	Cat.N°	11340170
<i>medium</i>	25 µg	Cat.N°	11340174
<i>large</i>	100 µg	Cat.N°	11340176
<i>x-large</i>	500 µg	Cat.N°	11340177

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Recombinant Human Interleukin-17F (rh IL-17F)

Synonyms: Cytokine ML-1, Interleukin-17F precursor

Introduction: IL-17F is a cytokine that shares sequence similarity with IL17. IL-17F is expressed by activated T cells and has been shown to stimulate the production of several other cytokines, including IL6, IL8, and GM-CSF. IL-17F inhibits the angiogenesis of endothelial cells and induces endothelial cells to produce IL2, TGFB1/TGFB, and monocyte chemoattractant protein-1. IL-17F induces stromal cells to produce proinflammatory and hematopoietic cytokines. Intestinal IL17F gene expression is increased in active CD. IL-17A & IL-17F alleles influence the susceptibility to and pathophysiological features of ulcerative colitis independently. IL-17F and MIF gene polymorphisms are significantly associated with the development of functional dyspepsia. The initiation of IL-17F/IL-17R signaling pathway requires the receptor ubiquitination by TRAF6. IL-17F induces expression of IFN-gamma-inducible protein 10 (IP-10) by activating Raf1-mitogen-activated protein kinase 1/2-extracellular-regulated kinase 1/2-p90 ribosomal S6 kinase-cyclic AMP response element-binding protein signaling pathway.

Description: Recombinant human Interleukin-17F produced in E.Coli is a homodimeric, cysteine linked, non-glycosylated polypeptide chain containing 2 x 134 amino acids and having a total molecular mass of 30.1 kDa. The human IL-17F is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 25 mM Sodiumphosphate, 200 mM NaCl, pH 7.0. The aliquots/samples of 1µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-17F in sterile H₂O not less than 1mg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-17F although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rh IL-17F should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSS or BSA). Please prevent freeze-thaw cycles.

Purity: 95.0% as determined by SDS-PAGE silver stained gel.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method

Amino acid sequence: MRKIPKVGHT FFQKPESCPP VPGGSMKLDI GIINENQRVS MSRNIESRST SPWNYTVTWD PNRYPSEVVQ AQCRNLGCIN AQGKEDISMN SVPIQQETLV VRRKHQGCSV SFQLEKVLVT VGCTCVTPVI HHVQ

Biological Activity: rh IL-17F is fully biologically active tested by stimulation of IL-6 production by normal human dermal fibroblasts - NHDFs.

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<i>small</i>	5 µg	Cat.N°	11349170
<i>medium</i>	25 µg	Cat.N°	11349174
<i>large</i>	100 µg	Cat.N°	11349176
<i>x-large</i>	500 µg	Cat.N°	11349177

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Recombinant Human Interleukin-19 (rh IL-19)

Synonyms: Melanoma differentiation association like protein, MDA1, NG.1, ZMDA1, IL-10C.

Introduction: IL-19 is a cytokine that belongs to the IL-10 cytokine subfamily. IL-19 is found to be preferentially expressed in monocytes. It can bind the IL-20 receptor complex and lead to the activation of the signal transducer and activator of transcription 3 (STAT3). A similar cytokine in mouse is reported to regulate the expression of IL-6 and TNF-alpha up and to induce apoptosis which suggests a role of IL-19 in inflammatory responses. Alternatively spliced transcript variants encoding the distinct isoforms have been described.

Description: Recombinant human IL-19 produced in *E. Coli* is a single, non-glycosylated polypeptide chain containing 155 amino acids and having a molecular mass of 17.9 kDa. Rh IL-19 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from 0.22 µm filtered solution in 25 mM sodium phosphate, 200 mM NaCl pH 6.5,. The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-19 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-19 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C . Upon reconstitution rh IL-19 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles

Purity: Greater than 95 % as determined by RP-HPLC and by SDS-PAGE.

Endotoxicty: The endotoxin level is less than 1 EU / µg determined by LAL method

Amino acid sequence: MLRRCLISTD MHHIEESFQE IKRAIQAKDT FPNVTILSTL ETLQIIKPLD
VCCVTKNLLA FYVDRVFKDH QEPNPKILRK ISSIANSFLY MQKTLRQCQE QRQCHCRQEA TNATRVIHDN
YDQLEVHAAA IKSLGELDVF LAWINKNHEV MSSA

Biological Activity: The activity is determined by its ability to activate STAT following receptor-ligand interaction.

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<i>small</i>	2 µg	Cat.N°	11340192
<i>medium</i>	10 µg	Cat.N°	11340193
<i>large</i>	50 µg	Cat.N°	11340195
<i>medium</i>	250 µg	Cat.N°	11340197
<i>large</i>	1000 µg	Cat.N°	11340198

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Recombinant Human Interleukin-20 (rh IL-20)

Synonyms: IL10D, ZCYTO10, Four alpha helix cytokine Zcyto10.

Introduction: IL-20 is a cytokine structurally related to Interleukin 10. IL-20 has been shown to transduce its signal through signal transducer and activator of transcription 3 (STAT3) in keratinocytes. A specific receptor for IL-20 is found to be expressed in skin and upregulated dramatically in psoriatic skin, suggesting a role for this protein in epidermal function and psoriasis.

Description: Recombinant human IL-20 produced in *E.Coli* is a single, non-glycosylated homodimeric polypeptide chain containing 2 x 153 amino acids and having a total molecular mass of 35.212 Dalton. The rh IL-20 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 25 mM sodium phosphate, 200 mM NaCl, pH 6.5. The aliquots of 1 µg and 2 µg contain Trehalose 5% (w/vol) for better recovery.

Solubility: It is recommended to reconstitute the lyophilized rh IL-19 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-20 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-20 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Amino acid sequence: MLKTLNLGSC VIATNLQEIR NGFSEIRGSV QAKDGNIDIR ILRRTESLQD
TKPANRCCLL RHLLRLYLDR VFKNYQTPDH YTLRKISSLA NSFLTIIKKDL RLCHAHMTCH
CGEEAMKKYS QILSHFEKLE PQAAVVKALG ELDILLQWME ETE

Biological Activity: The biological activity was tested by hIL-20 induced reporter gene expression in hIL-20R transfected Ba/F3 cells.

Endotoxin: The endotoxin level is less than 1 EU / µg determined by LAL method.

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<i>small</i>	2 µg	Cat.N°	11340202
<i>medium</i>	10 µg	Cat.N°	11340203
<i>large</i>	50 µg	Cat.N°	11340205
<i>x-large</i>	250 µg	Cat.N°	11340207

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Recombinant Human Interleukin-21 (rh IL-21)

Synonyms: Za11

Introduction: IL-21 is produced by CD4+ T cells in response to antigenic stimulation. Its action enhances antigen-specific responses of immune cells. The biological effects of IL-21 include induction of differentiation of T-cells-stimulated B-cells into plasma cells and memory B-cells, stimulation (in conjunction) with IL-4 of IgG production and induction of apoptotic effects in naïve and stimulated B-cells in the absence of T-cell signaling. IL-21 additionally 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 gamma chain (γ c) 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.

Description: Recombinant human IL-21 produced in *E.Coli* is a single, non-glycosylated polypeptide chain containing 133 amino acids and having a molecular mass of 15.4 kDa. The rh IL-21 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from PBS, pH 7.4.

The aliquots of 1 μ g and 2 μ g contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-21 in sterile H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-21 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-21 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 0.1 ng per μ g (1EU/ μ g) determined by LAL method

Amino acid sequence: MQDRHMIRMRLQLIDIVDQLK NYVNDLVPEF LPAPEDVETN CEWSAFSCFQ
KAQLKSANTG NNERIINVISI KKLKRKPPST NAGRQRKHRL TCPSCDSYEK KPPKEFLERF KSLQKMIHQ
HLSSRTHGSE DS

Biological Activity: The ED50 is 1 - 10ng/ml corresponding to a specific activity of 0.1 – 1x 10⁶ IU/mg, determined by the dose-dependant proliferation of human peripheral blood mononuclear cells.

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<i>small</i>	2 μ g	Cat.N°	11340212
<i>medium</i>	10 μ g	Cat.N°	11340213
<i>large</i>	50 μ g	Cat.N°	11340215
<i>x-large</i>	250 μ g	Cat.N°	11340217

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Recombinant Human Interleukin-22 (rh IL-22)

Synonyms: IL-TIF, TIFa, IL-10-related T-cell-derived-inducible factor, ILTIF, IL-D110, zcyto18, TIFIL-23.

Introduction: IL-22 is a member of the IL-10 family of regulatory cytokines. 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-10R-beta/CRF2-4 and IL-22R, both of which are members of the class II cytokine-receptor family.

Description: Recombinant human IL-22 produced in E.Coli is a single, non-glycosylated, homodimeric polypeptide chain containing 2x146 amino acids and having a molecular mass of 33.6 kDa. Rh IL-22 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 25 mM Sodiumphosphate, 200 mM NaCl, pH 6.0. The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-22 in sterile water not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-22 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rh IL-22 should be stored at 4°C between 2-7days, for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 0.1 ng per µg (1EU/µg) determined by LAL method

Amino acid sequence: MAPISSHCRLLDKSNFQQPYITNRTFMLAKEASLADNNTDVRLIGEKLFHG
VSMSERCYLMKQVLNFTLEEVLFPQSDRFQPYMQEVPFLARLSNRLSTCHIEGDDLHIQ
RNVQKLKDTVKKLGESGEIKAIGELDLLFM SLRNACI

Biological Activity: The biological activity was determined by the ability to activate STAT following receptor ligand interaction.

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<i>small</i>	2 µg	Cat.N°	11340222
<i>medium</i>	10 µg	Cat.N°	11340223
<i>large</i>	50 µg	Cat.N°	11340225
<i>x-large</i>	250 µg	Cat.N°	11340227
<i>xx-large</i>	1000 µg	Cat.N°	11340228

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Recombinant Human Interleukin-31 (rh IL-31)

Introduction: IL-31 produced by activated Th2-type T cells, cooperates with a heterodimeric receptor consisting of IL-31 Receptor Antagonist and Oncostatin-M Receptor that is continuously expressed on epithelial cells and keratinocytes. IL-31 plays a role in the promotion of allergic skin disorders and in regulating other allergic diseases such as asthma. IL-31 is involved in the itching sensation and endorses the scratching behavior in NC/Nga mice with atopic dermatitis. IL-31 expression is connected with CLA(+) T cells and contributes to the development of atopic dermatitis-induced skin inflammation and pruritus. IL-31 is a powerful inducer of proinflammatory mediators in human colonic SEMFs and takes part as a proinflammatory cytokine derived from Th2 cells. Serum IL-31 level is higher in patients with atopic dermatitis. IL-31 is involved in a broad range of immune- and non-immune cells and possesses potential pleiotropic physiological functions -including regulating hematopoiesis and immune response- causing inflammatory bowel disease, airway hypersensitivity and dermatitis.

Description: Recombinant human Interleukin-31 produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 141 amino acids (24-164 a.a.) and having a molecular mass of 15.8 kDa.

Source: *Escherichia Coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilised from a 0.22 µm filtered solution in PBS pH 7.4
The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IL-31 in sterile water not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IL-31 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rh IL-31 should be stored at 4°C between 2-7days, for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Amino Acid Sequence: SHTLPVRLLR PSDDVQKIVE ELQSLSKMLL KDVEEEKGVL VSQNYTLPCCL SPDAQPPNNI HSPAIRAYLK TIRQLDNKSV IDEIIEHLDK LIFQDAPETN ISVPTDTHEC KRFILTISQQ FSECMDLALK SLTSGAQQAT T.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Biological Activity: The ED50 was determined by its ability to activate STAT following receptor ligand interaction and found to be < 5 ng/ml, corresponding to a specific activity of 200,000 units/mg.

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<i>small</i>	2 µg	Cat.N°	11340312
<i>medium</i>	10 µg	Cat.N°	11340313
<i>large</i>	50 µg	Cat.N°	11340315
<i>x-large</i>	250 µg	Cat.N°	11340317

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Recombinant Human Interferon gamma induced Protein (rh IP-10 / CXCL10)

Synonyms: Small inducible cytokine B10, 10 kDa interferon-gamma-induced protein, Gamma-IP10, chemokine (C-X-C motif) ligand 10, C7, IFI10, INP10, crg-2, mob-1, SCYB10, gIP-10.

Introduction: IP-10 is a small cytokine belonging to the CXC chemokine family. IP-10 is secreted by several cell types in response to IFN- γ . These cell types include monocytes, endothelial cells and fibroblasts. IP-10 has been attributed to several roles, such as chemoattraction for monocytes and T cells, promotion of T cell adhesion to endothelial cells, anti tumor activity and inhibition of bone marrow colony formation and angiogenesis. The gene for IP-10 is located on human chromosome 4 in a cluster among several other CXC chemokines. IP-10 elicits its effects by binding to the cell surface chemokine receptor CXCR3. The three-dimensional crystal structure of this chemokine has been determined under 3 different conditions to a resolution of up to 1.92Å.

Description: Recombinant human IP-10 produced in *E.Coli* is a single, non-glycosylated polypeptide chain containing 77 amino acids and having a molecular mass of 8.5 kDa. rh IP-10 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile Filtered White lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 μ m filtered solution in 50 mM sodium phosphate, 50 mM NaCl, pH 7.7. The aliquots/samples of 1 μ g contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh IP-10 in sterile H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh IP-10 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IP-10 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino acid sequence: VPLSRTVRCT CISISNPVN PRSLEKLEII PASQFCPRVE IIATMKKKGE
KRCLNPESKA IKNLLKAVSK EMSKRSP

Endotoxicity: The endotoxin level is less than 1 EU / μ g determined by LAL method

Biological Activity: Determined by its ability to chemoattract human T-lymphocytes in a concentration range of 10 – 100 ng/ml the ED₅₀ range is 5.0 - 20 ng/mL.

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<i>small</i>	5 μ g	Cat.N°	11343880
<i>medium</i>	25 μ g	Cat.N°	11343884
<i>large</i>	100 μ g	Cat.N°	11343886
<i>x-large</i>	500 μ g	Cat.N°	11343887

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Recombinant Human Keratinocyte Growth Factor-2 (rh KGF-2 / FGF-10)

Synonyms: FGF-10, Fibroblast growth factor 10.

Introduction: KGF-2 is a member of the fibroblast growth factor (FGF) family. FGF family members possess broad mitogenic and cell survival activities and are involved in a variety of biological processes including embryonic development, cell growth, morphogenesis, tissue repair, tumor growth and invasion. KGF-2 exhibits mitogenic activity for keratinizing epidermal cells, but essentially no activity for fibroblasts which is similar to the biological activity of KGF-1. Studies of the mouse homolog of suggested that this gene is required for embryonic epidermal morphogenesis including brain development, lung morphogenesis, and initiation of limb bud formation. This gene is also implicated to be a primary factor in the process of wound healing.

Description: Recombinant Human KGF-2 produced in *E. Coli* is a single, non-glycosylated, polypeptide chain containing 170 amino acids and having a molecular mass of 19300 Dalton. rh KGF-2 is highly related to KGF-1 (FGF-7), it binds to the same receptor as KGF-1 and shares 57 % sequence homology. rh KGF-2 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized in water containing 5 mM Sodium Phosphate buffer, pH 7.4 + 80 mM NaCl. The aliquots of 1 µg and 2 µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh KGF-2 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh KGF-2 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by RP-HPLC and by SDS-PAGE.

Amino acid Sequence: The sequence of the first five N-terminal amino acids was determined and was found to be Met-Leu-Glu-Gln-Asp.

Biological Activity: The ED₅₀, calculated by the dose-dependant stimulation of FGF receptors by BaF3 indicator cells (measured by ³H-thymidine uptake) is < 0.5 ng/ml corresponding to a specific activity of 2 x 10⁶ Units/mg.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method

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<i>small</i>	2 µg	Cat.N°	11343602
<i>medium</i>	10 µg	Cat.N°	11343603
<i>large</i>	50 µg	Cat.N°	11343605
<i>x-large</i>	250 µg	Cat.N°	11343607

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Recombinant Human Leukemia Inhibitory Factor (rh LIF)

Synonyms: CDF, HILDA, D-FACTOR, Differentiation- stimulating factor, Melanoma-derived LPL inhibitor, MLPLI, Emfilermin, DIA

Introduction: Leukemia Inhibitory Factor is a lymphoid factor that promotes long-term maintenance of embryonic stem cells by suppressing spontaneous differentiation. LIF has several functions such as cholinergic neuron differentiation, control of stem cell pluripotency, bone & fat metabolism, mitogenesis of factor dependent cell lines & promotion of megakaryocyte production in vivo. Human and mouse LIF exhibit a 78% identity in its amino acid sequence. Human LIF is as active on human cells as it is on mouse cells, though mouse LIF is about 1000 fold less active on human cells than human LIF.

Description: Recombinant human Leukemia Inhibitory Factor produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 180 amino acids and having a molecular mass of 19.7kDa. The human LIF is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: lyophilized from a 0.22 µm filtered solution in PBS, pH 7.5
The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh LIF in sterile H₂O not less than 1mg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh LIF although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rh LIF should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSS or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE silver stained gel.

Amino acid sequence: SPLPITPVNA TCAIRHPCHN NLMNQIRSQL AQLNGSANAL FILYYTAQGE
PFPNNLDKLC GPNVTDFFPF HANGTEKAKL VELYRIVVYL GTSLGNITRD QKILNPSALS
LHSKLNATAD ILRGLLSNVL CRLCSKYHVG HVDVTYGPDT SGKDFVQKKK LGCQLLGKYK QIIAVLAQAF

Biological Activity: Determined by LIF induced STAT3 activation in murine C2C12 cells the ED50 is < 0.01 ng/ml, corresponding to a specific activity of 100M IU/mg.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method

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<i>small</i>	2 µg	Cat.N°	11344252
<i>medium</i>	10 µg	Cat.N°	11344253
<i>large</i>	50 µg	Cat.N°	11344255
<i>x-large</i>	250 µg	Cat.N°	11344257
<i>xx-large</i>	1000 µg	Cat.N°	11344258

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Recombinant Human Monocyte Chemotactic Protein-1 (rh MCP-1 / CCL2)

Synonyms: Small inducible cytokine A2, Monocyte chemoattractant protein 1, Monocyte chemotactic and activating factor, MCAF, Platelet-derived growth factor-inducible protein JE.

Introduction: MCP-1 is a small cytokine belonging to the CC chemokine family that is also known as monocyte chemotactic protein-1 (MCP-1). It is found at the site of tooth eruption and bone degradation. In the bone MCP-1 is expressed by mature osteoclasts and osteoblasts and is under the control of nuclear factor κ B (NF κ B). MCP-1 recruits immune cells, such as monocytes, to sites of tissue injury and infection. It is produced as a protein precursor containing signal peptide of 23 amino acids and a mature peptide of 76 amino acids. It is a monomeric polypeptide, with a molecular weight of approximately 13kDa. As with many other CC chemokines MCP-1 is located on chromosome 17 in humans. The cell surface receptors that bind MCP-1 are CCR2 and CCR5.

Description: Recombinant human MCP-1 produced in *E.Coli* is a non-glycosylated polypeptide chain containing 76 amino acids and having a molecular mass of 8607 Dalton. The rh MCP-1 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 μ m filtered solution in 25 mM sodium phosphate, 400 mM NaCl, pH 7.4. The aliquots/samples of 1 μ g contain Trehalose 5% (w/vol) for better recovery.

Solubility: It is recommended to reconstitute the lyophilized rh MCP-1 in sterile H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh MCP-1 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh MCP-1 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino acid Sequence: QPDAINAPVT CCYNFTNRKI SVQRLASYRR ITSSKCPKEA VIFKTIVAKE
ICADPKQKWV QDSMDHLDKQ TQTPKT

Endotoxicity: The endotoxin level is less than 1 EU / μ g determined by LAL method.

Biological Activity: rh MCP-1 is fully biologically active when compared to standard. The specific activity as determined by the ability of MCP-1 to chemoattract human monocytes using a concentration of 5-20 ng/ml.

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<i>small</i>	5 μ g	Cat.N°	11343380
<i>medium</i>	20 μ g	Cat.N°	11343384
<i>large</i>	100 μ g	Cat.N°	11343386
<i>x-large</i>	500 μ g	Cat.N°	11343387

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Recombinant Human Monocyte Chemotactic Protein-2 (rh MCP-2 / CCL8)

Synonyms: Small inducible cytokine A8, Monocyte chemoattractant protein 2, chemokine (C-C motif) ligand 8, HC14

Introduction: The MCP proteins belong to the CC chemokine family and 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. The CCL8 is produced as a precursor containing 109 amino acids, which is cleaved to produce mature CCL8 containing 75 amino acids. The gene for CCL8 is encoded by 3 exons and is located within a large cluster of CC chemokines on chromosome 17q11.2 in humans. CCL8 elicits its effects by binding to several different cell surface receptors called chemokine receptors. These receptors include CCR1, CCR2B and CCR5.

Description: Human Recombinant Monocyte Chemotactic Protein-2 produced in E.Coli is a non-glycosylated, polypeptide chain containing 76 amino acids (including the four highly conserved cysteine residues present in the CC chemokines) and having a molecular mass of 8.9 kDa.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 50 mM Sodiumphosphate, 50 mM NaCl, pH 7.8
The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized MCP-2 in sterile H2O not less than 100µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized MCP-2 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution CCL8 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE / silver stain

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method

Amino acid sequence: QPDSVSIPIT CCFNVINRKI PIQRLESYTR ITNIQCPKEA VIFKTKRGKE
VCADPKERWV RDSMKHLDQI FQNLKP

Biological Activity: Determined by its ability to induce chemotaxis of human PBMCs within a concentration range of 10 - 100 ng/ml.

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<i>small</i>	2 µg	Cat.N°	11343892
<i>medium</i>	10 µg	Cat.N°	11343893
<i>large</i>	50 µg	Cat.N°	11343895
<i>x-large</i>	250 µg	Cat.N°	11343897
<i>xx-large</i>	1000 µg	Cat.N°	11343898

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Recombinant Human Monocyte Chemotactic Protein-3 (rh MCP-3 / CCL7)

Synonyms: Small inducible cytokine A7, Monocyte chemoattractant protein 3, chemokine (C-C motif) ligand 7, MARC

Introduction: The MCP proteins belong to the CC chemokine family and 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. CCL7 specifically attracts monocytes and regulates macrophage function. It is produced by certain tumor cell lines and by macrophages. This chemokine is located on chromosome 17 in humans, in a large cluster containing many other CC chemokines and is most closely related to CCL2(previously called MCP-1).

Description: Human Recombinant Monocyte Chemotactic Protein-3 produced in E.Coli is a non-glycosylated, polypeptide chain containing 76 amino acids (including the four highly conserved cysteine residues present in the CC chemokines) and having a molecular mass of 9 kDa.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 50 mM Sodiumphosphate, 50 mM NaCl, pH 7.8
The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized MCP-3 in sterile H₂O not less than 100µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized MCP-3 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution CCL7 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE / silver stain

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method

Amino acid sequence: QPVGINTSTT CCYRFINKKI PKQRLESYRR TTSSHCPREA VIFKTKLDKE
ICADPTQKWV QDFMKHLDKK TQTPKL

Biological Activity: Determined by its ability to induce chemotaxis of human PBMCs within a concentration range of 10 - 100 ng/ml.

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<i>small</i>	2 µg	Cat.N°	11343902
<i>medium</i>	10 µg	Cat.N°	11343903
<i>large</i>	50 µg	Cat.N°	11343905
<i>x-large</i>	250 µg	Cat.N°	11343907
<i>xx-large</i>	1000 µg	Cat.N°	11343908

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Recombinant Human Macrophage Colony Stimulating Factor (rh M-CSF)

Synonyms: CSF-1, Lanimostim

Introduction: Granulocyte/ Macrophage Colony- Stimulating Factors are cytokines that act in hematopoiesis by controlling the production, differentiation and function of 2 related white cell populations of the blood, the granulocytes and the monocytes- macrophages. M-CSF induces cells of the monocyte/ macrophage lineage. It plays a role in immunological defenses, bone metabolism, lipoproteins clearance, fertility and pregnancy.

Description: Recombinant human M-CSF produced in *E.coli* is a disulfide linked homodimer, non-glycosylated, polypeptide chain containing 2 x 159 amino acids and having a total molecular mass of 36.8 kDa. rh M-CSF is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: lyophilized from a 0.22 filtered carrier free solution in 50 mM Tris and 200 mM NaCl, pH 10.0. The aliquots of 1 µg and 2 µg contain Trehalose 5% (w/vol) for better recovery.

Solubility: It is recommended to reconstitute the lyophilized rh M-CSF in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh M-CSF although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh M-CSF should be stored at 4° C between 2-7 days and for future use below -18° C. Please prevent freeze-thaw cycles.

Purity: 95.0% as determined by SDS-PAGE / silver stain.

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method

Amino Acid Sequence: MEEVSEYCSH MIGSGHLQSL QRLIDSQMET SCQITFEFVD QEQLKDPVCY LKKAFLLVQD IMEDTMRFRD NTPNAIAIVQ LQELSLRLKS CFTKDYEEHD KACVRTFYET LQLLEKVKVNFNETKNLLD KDOWNIFSKNC NNSFAECSSQ GHERQSEGS.

Biological Activity: The ED₅₀ tested by receptor driven reporter gene expression in Ba/F3 c-fms transfectants was found to be < 2.0 ng/ml.

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<i>small</i>	2 µg	Cat.N°	11343112
<i>medium</i>	10 µg	Cat.N°	11343113
<i>large</i>	50 µg	Cat.N°	11343115
<i>x-large</i>	250 µg	Cat.N°	11343117

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Recombinant Human Macrophage Inflammatory Protein-1 alpha (rh MIP-1alpha / CCL3)

Synonyms: Small inducible cytokine A3, SCYA3, Tonsillar lymphocyte LD78 alpha protein, LD78ALPHA.

Introduction: Macrophage Inflammatory Proteins (MIP) belong to the family of chemotactic cytokines known as chemokines. In humans there are two major forms. Both are major factors produced by macrophages after they are stimulated with bacterial endotoxins. They activate human granulocytes (neutrophils, eosinophils and basophils) which can lead to acute neutrophilic inflammation. They also induce the synthesis and release of other pro-inflammatory cytokines such as Interleukin 1 (IL-1), IL-6 and TNF- α from fibroblasts and macrophages. The genes for MIP-1alpha and MIP-1beta are both located on human chromosome 17.

Description: Recombinant human MIP-1alpha produced in *E. Coli* is a single, non-glycosylated, polypeptide chain containing 70 amino acids and having a molecular mass of 7820 Dalton. rh MIP-1alpha is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from 0.22 μ m filtered solution in 25 mM Sodiumphosphate
The aliquots/samples of 1 μ g contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh MIP-1 alpha in sterile H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh MIP-1alpha, although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh MIP-1alpha should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino acid Sequence: ASLAADTPTA CCFSYTSRQI PQNFIADYFE TSSQCCKPGV IFLTKRSRQV
CADPSEEWVQ KYVSDLELSA

Biological Activity: The activity is calculated by the ability of chemo-attraction of human monocytes using a range of 1-10 ng/ml.

Endotoxicity: The endotoxin level is less than 1 EU / μ g determined by LAL method

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<i>small</i>	5 μ g	Cat.N $^{\circ}$	11343200
<i>medium</i>	20 μ g	Cat.N $^{\circ}$	11343204
<i>large</i>	100 μ g	Cat.N $^{\circ}$	11343206
<i>x-large</i>	500 μ g	Cat.N $^{\circ}$	11343207
<i>xx-large</i>	1000 μ g	Cat.N $^{\circ}$	11343208

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Recombinant Human Macrophage Inflammatory Protein-4 (rh MIP-4 / CCL18)

Synonyms: Small inducible cytokine A18 (SCYA18), Pulmonary and activation-regulated chemokine (PARC), CC chemokine PARC, Alternative macrophage activation-associated CC chemokine 1 (AMAC-1), Dendritic cell chemokine 1 (DCCK1), CKb7

Introduction: Chemokine (C-C motif) ligand 18 (CCL18) is a small cytokine belonging to the CC chemokine family that was previously called PARC (pulmonary and activation-regulated chemokine). MIP-4 is approximately 60% identical in amino acid sequence to MIP-1a. It is expressed at high levels in lungs and at lower levels in certain lymphoid tissues, such as the lymph nodes, and is chemotactic for activated T cells and nonactivated lymphocytes. The gene for human MIP-4 contains three exons and is located on chromosome 17.

Description: rh MIP-4 produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 69 amino acids and having a molecular mass of 7813 Dalton. The MIP-4 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from 0.22 µm filtered solution in 20 mM Tris, 200 mM NaCl, pH 7.4
The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh MIP-4 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh MIP-4, although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh MIP-4 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino acid sequence: AQVGTNKELC CLVYTSWQIP QKFIVDYSET SPQCPKPGVI LLTKRGRQIC
ADPNKKWVQK YISDLKLNLA

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Biological Activity: The activity is calculated by the ability to chemoattract human T lymphocytes at 1.0-10.0 ng/ml.

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<i>small</i>	2 µg	Cat.N°	11343252
<i>medium</i>	10 µg	Cat.N°	11343253
<i>large</i>	50 µg	Cat.N°	11343255
<i>x-large</i>	250 µg	Cat.N°	11343257
<i>xx-large</i>	1000 µg	Cat.N°	11343258

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Recombinant Human Neutrophil Activating Protein-2 (rh NAP-2 / CXCL7)

Synonyms: Platelet basic protein, PBP, Small inducible cytokine B7, Leukocyte-derived growth factor, LDGF, Macrophage-derived growth factor, MDGF, CTAP3, SCYB7, THBGB, LA-PF4, Beta-TG

Introduction: NAP-2 is a small cytokine belonging to the CXC chemokine family. It is a protein that is released in large amounts from platelets following their activation. It stimulates various processes including mitogenesis, synthesis of extracellular matrix, glucose metabolism and synthesis of plasminogen activator.

Description: Recombinant human NAP-2 produced in *E. Coli* is a non-glycosylated polypeptide chain containing 70 amino acids and having a molecular mass of 7.6 kDa. The rh NAP-2 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 25 mM sodium phosphate, 50 mM NaCl pH 7.3. The aliquots of 1 µg and 2 µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh NAP-2 in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh NAP-2 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino acid sequence: AELRC MCIKTTSGIHPKNIQSLEVI GKGTHCNQVEVIATLKDGRK
ICLDPDAPRIKKIVQKLAG DESAD

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Biological Activity: The specific activity as determined by the ability of NAP-2 to chemoattract human neutrophils using a concentration of 1-10 ng/ml.

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<i>small</i>	2 µg	Cat.N°	11343392
<i>medium</i>	10 µg	Cat.N°	11343393
<i>large</i>	50 µg	Cat.N°	11343395
<i>x-large</i>	250 µg	Cat.N°	11343397
<i>xx-large</i>	1000 µg	Cat.N°	11343398

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Recombinant Human Neuregulin-1a (rh NRG-1a)

Synonyms: Heregulin- α -1(HRG-a1)

Introduction: Neuregulin/Heregulin is a family of structurally related polypeptide growth factors derived from alternatively spliced genes (NRG-1, NRG-2, NRG-3 and NRG-4). To date, there are over 14 soluble and transmembrane proteins derived from the NRG-1 gene. Proteolytic processing of the extracellular domain of the transmembrane NRG-1 isoforms release soluble growth factors.

NRG is a signaling protein for Erb2/Erb4 receptor heterodimers on the cardiac muscle cells, playing an important role in the heart structure and function through inducing ErbB2/ErbB4 receptor phosphorylation and cardiomyocyte differentiation. Research on molecular level discovered that recombinant Neuregulin could make disturbed myocardial cell structure into order and strengthen the connection between myocardial cells by intercalated discs reorganization. Pharmacodynamic experiments in animals showed that rh NRG-1 can reduce the degree of damage on myocardial cells caused by ischemia, hypoxia and viral infection.

Description: Recombinant human Neuregulin-1a produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 65 amino acids and having a total molecular mass of 7.4kDa. NRG-1a is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.2 μ m filtered solution in PBS, pH 6.0
The aliquots/samples of 1 μ g contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh NRG-1a in sterile H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh NRG-1a although stable at room temperature for 3 weeks, should be stored desiccated below -18 $^{\circ}$ C. Upon reconstitution rh NRG-1a should be stored at 4 $^{\circ}$ C between 2-7 days and for future use below -18 $^{\circ}$ C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino acid Sequence:

SHLVKCAEKE KTFVNGGEC FMVKDLSNPS RYLCKCQPGF TGARCTENVP MKVQNQEKA ELYQK.

Biological Activity: The ED50 was determined by the dose-dependent stimulation of the proliferation of human MCF-7 cells is less than 40 ng/ml, corresponding to a specific activity of > 2.5 \times 10⁴ units/mg.

Endotoxicity: The endotoxin level is less than 1 EU / μ g determined by LAL method.

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<i>small</i>	5 μ g	Cat.N $^{\circ}$	11345090
<i>medium</i>	20 μ g	Cat.N $^{\circ}$	11345094
<i>large</i>	100 μ g	Cat.N $^{\circ}$	11345096
<i>x-large</i>	500 μ g	Cat.N $^{\circ}$	11345097

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Recombinant Human Neuregulin-1b (rh NRG-1b)

Synonyms: Heregulin- β -1(HRG-b1)

Introduction: Neuregulin/Heregulin is a family of structurally related polypeptide growth factors derived from alternatively spliced genes (NRG-1, NRG-2, NRG-3 and NRG-4). To date, there are over 14 soluble and transmembrane proteins derived from the NRG-1 gene. Proteolytic processing of the extracellular domain of the transmembrane NRG-1 isoforms release soluble growth factors.

NRG is a signaling protein for Erb2/Erb4 receptor heterodimers on the cardiac muscle cells, playing an important role in the heart structure and function through inducing ErbB2/ErbB4 receptor phosphorylation and cardiomyocyte differentiation. Research on molecular level discovered that recombinant Neuregulin could make disturbed myocardial cell structure into order and strengthen the connection between myocardial cells by intercalated discs reorganization. Pharmacodynamic experiments in animals showed that rh NRG-1 can reduce the degree of damage on myocardial cells caused by ischemia, hypoxia and viral infection.

Description: Recombinant human Neuregulin-1b produced in *E. Coli* is a single, non-glycosylated polypeptide chain containing 61 amino acids and having a molecular mass of 7 kDa. rh NRG-1b is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.2 μ m filtered solution in 20mM Tris, 200mM NaCl, pH 9.0
The aliquots/samples of 1 μ g contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh NRG-1b in sterile H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh NRG-1b although stable at room temperature for 3 weeks, should be stored desiccated below -18 $^{\circ}$ C. Upon reconstitution rh NRG-1b should be stored at 4 $^{\circ}$ C between 2-7 days and for future use below -18 $^{\circ}$ C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU / μ g determined by LAL method.

Amino acid Sequence:

SHLVKCAEKEKTFVNGGECFMVKDLSNPSRYLCKCPNEFTGDRQCQNYVMASFYKAEELYQ

Biological Activity: The activity measured by its ability to stimulate the proliferation of human MCF-7 cells grown under serum-free conditions is corresponding to a specific activity of 1 x10⁶ units/mg.

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<i>small</i>	10 μ g	Cat.N $^{\circ}$	11343043
<i>medium</i>	50 μ g	Cat.N $^{\circ}$	11343045
<i>large</i>	250 μ g	Cat.N $^{\circ}$	11343047

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Recombinant Human Oncostatin M 209 a.a. (rh OSM 209a.a.)

Introduction: Oncostatin M is a member of a cytokine family that includes leukemia-inhibitory factor, granulocyte colony-stimulating factor and Interleukin 6. This gene encodes a growth regulator which inhibits the proliferation of a number of tumor cell lines. It regulates cytokine production, including IL-6, G-CSF and GM-CSF from endothelial cells.

Description: Recombinant human OSM 209 a.a. produced in *E. coli* is a single, non-glycosylated, polypeptide chain containing 209 amino acids and having a molecular mass of 23.9 kDalton. rh OSM 209a.a. is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution containing PBS. The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh OSM 209a.a. in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh OSM 209a.a. although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh OSM 209a.a. should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95 % (verified by SDS-PAGE / silver stain)

Amino acid Sequence: AAIGSCSKEY RVLLGQLQKQ TDLMQDTSRL LDPYIRIQGL DVPKLREHCR ERPGAFPSEE TLRGLGRRGF LQTLNATLGC VLHRLADLEQ RLPKAQDLER SGLNIEDLEK LQMARPNI LG LRNNIYCMAQ LLDNSDTAEP TKAGRGASQP PTPTPASDAF QRKLEGCRFL HGYHRFMHSV GRVFSKWGES PNRSRRHSPH QALRKGVRRT RPSRKGKRLM TRGQLPR

Biological Activity: The ED₅₀, as determined by the dose-dependant stimulation of human TF-1 cells is < 2 ng/ml, corresponding to a specific activity of 5x10⁵ IU/mg.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

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<i>small</i>	2 µg	Cat.N°	11344222
<i>medium</i>	10 µg	Cat.N°	11344223
<i>large</i>	50 µg	Cat.N°	11344225
<i>x-large</i>	250 µg	Cat.N°	11344227

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Recombinant Human Platelet-derived Growth Factor AA (rh PDGF-AA)

Synonyms: Glioma-derived growth factor (GDGF), Osteosarcoma-derived Growth Factor (ODGF), PDGF-1.

Introduction: 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 alpha-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-alpha and PDGFR-beta. PDGFR-alpha is high-affinity receptor for each of the three PDGF forms. On the other hand, PDGFR-beta interacts with only PDGF-BB and PDGF-AB.

Description: Recombinant human PDGF-AA is a non-glycosylated, disulfide-linked homodimer of two A-chains (2 x 125 amino acids) having a molecular mass of 28.5 kDa.

Source: *Escherichia Coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 100mM acetic acid. The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh PDGF-AA in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh PDGF-AA although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh PDGF-AA should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino acid sequences: SIEEAVPAVC KTRTVIYEIP RSQVDPTSAN FLIWPPCVEV KRCTGCCNTS SVKCQPSRVH HRSVKVAKVE YVRKKPKLKE VQVRLEEHL E CACATTSLNP DYREEDTGRP RESGKKRKRK RLLKPT

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Biological Activity: Determined by the dose-dependent stimulation of thymidine uptake by BALB/c 3T3 cells the ED50 is < 1 ng/ml, corresponding to a specific activity of > 1 x 10⁶ units/mg.

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<i>small</i>	2 µg	Cat.N°	11343682
<i>medium</i>	10 µg	Cat.N°	11343683
<i>large</i>	50 µg	Cat.N°	11343685
<i>x-large</i>	250 µg	Cat.N°	11343687
<i>xx-large</i>	1000 µg	Cat.N°	11343688

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Recombinant Human Platelet-derived Growth Factor BB (rh PDGF-BB)

Synonyms: Glioma-derived growth factor, GDGF, Osteosarcoma-derived Growth Factor, ODGF, SIS, SSV, PDGF2, Becaplermin.

Introduction: PDGF-BB is a member of the platelet-derived growth factor family. The four members of this family are mitogenic factors for cells of mesenchymal origin and are characterized by a motif of eight cysteines. This gene product can exist either as a homodimer (PDGF-BB) or as a heterodimer with the platelet-derived growth factor alpha polypeptide (PDGF-AB), where the dimers are connected by disulfide bonds. Mutations in this gene are associated with meningioma. Reciprocal translocations between chromosomes 22 and 7, at sites where this gene and that for COL1A1 are located, are associated with a particular type of skin tumor called dermatofibrosarcoma protuberans resulting from unregulated expression of growth factor. Two splice variants have been identified for this gene.

Description: Recombinant human Platelet-Derived Growth Factor BB is a homodimeric, non-glycosylated polypeptide chain. PDGF-BB is purified by proprietary chromatographic techniques.

Source: *Escherichia coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: The protein was lyophilized from a 0.2µm filtered concentrated solution in 25 mM Naacetate

Solubility: It is recommended to reconstitute the lyophilized rh PDGF-BB in PBS.

Stability: Lyophilized rh PDGF-BB although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh PDGF-BB should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Amino Acid Sequence: SLGSLTIAEP AMIAECKTRT EVFEISRRLI DRTNANFLVW PPCVEVQRCS GCCNNRNVC RPTQVQLRPV QVRKIEIVRK KPIFKKATVT LEDHLACKCE TVAAARPVT

Biological Activity: Determined by the dose-dependent stimulation of the proliferation of Balb/c 3T3 cells. The expected ED50 for this effect is 1.0-3.0 ng/ml.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

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<i>small</i>	2 µg	Cat.N°	11343672
<i>medium</i>	10 µg	Cat.N°	11343673
<i>large</i>	50 µg	Cat.N°	11343675
<i>x-large</i>	250 µg	Cat.N°	11343677
<i>xx-large</i>	1000 µg	Cat.N°	11343678

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Recombinant Human Platelet Factor-4 Variant 1 (rh PF-4 Variant 1/ CXCL4)

Synonyms: Iroplact, Oncostatin-A, SCYB4,

Introduction: Platelet factor-4 is 70-amino acid protein that is released from the alpha-granules of activated platelets and binds with high affinity to heparin. Its major physiologic role appears to be neutralization of heparin-like molecules on the endothelial surface of blood vessels, thereby inhibiting local antithrombin III activity and promoting coagulation. As a strong chemoattractant for neutrophils and fibroblasts, PF-4 probably has a role in inflammation and wound repair. Oncostatin-A is a member of the CXC chemokine family. Human PF-4 is used for the proof of heparin-induced thrombocytopenia. Furthermore it is used as an inhibitor in the angiogenesis during tumor therapy.

Description: Human recombinant PF-4Variant1 produced in *E. coli* is a single, non-glycosylated polypeptide chain containing 70 amino acids and having a molecular mass of 7.8 kDa.

Source: *Escherichia coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 25 mM sodium phosphate, 500 mM NaCl, pH 7.0. The sample size of 1µg contains Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized PF-4Variant1 in sterile H₂O not less than 100µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized PF-4V1 although stable at room temperature for 1 week, should be stored desiccated below -18°C. Upon reconstitution PF-4 V1 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Amino Acid Sequence: EAEEDGDLQC LCVKTTTSQVR PRHITSLEVI KAGPHCPTAQ LIATLKNGRK ICLDLQALLY KKIIKEHLES.

Biological Activity: The rhPF4V1 is fully biologically active determined by its activity to inhibit migration of human umbilical vein endothelial cells in a concentration range of 10-100 ng/ml.

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<i>small</i>	5 µg	Cat.N°	11344990
<i>medium</i>	20 µg	Cat.N°	11344994
<i>large</i>	100 µg	Cat.N°	11344996
<i>x-large</i>	500 µg	Cat.N°	11344997

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Recombinant Human Rantes (rh Rantes / CCL5)

Synonyms: Regulation upon Activation Normal T cell Express Sequence, SIS-delta

Introduction: RANTES is a CC-chemokine that can signal through the CCR1, CCR3, CCR5 and US28 (cytomegalovirus receptor) receptors. It is chemotactic for T cells, eosinophils and basophils and plays an active role in recruiting leukocytes into inflammatory sites. With the help of particular cytokines (i.e. IL-2 and IFN- γ) that are released by T cells Rantes also induces the proliferation and activation of certain natural killer (NK) cells to form CHAK (CC-Chemokine-activated killer) cells. It is also a HIV-suppressive factor released from CD8+ T cells. This chemokine has been localized to chromosome 17 in humans.

Description: Recombinant human Rantes produced in *E.Coli* is a single, non-glycosylated polypeptide chain containing 68 amino acids and having a molecular mass of 7.8 kDa. The rh Rantes is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 μ m filtered solution in 25 mM NaP, 250 mM NaCl, pH 7.5
The aliquots/samples of 1 μ g contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh Rantes in sterile H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh Rantes although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh Rantes should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE / silver stain.

Endotoxicity: The endotoxin level is less than 1 EU / μ g determined by LAL method

Amino acid Sequence: SPYSSDTPC CFAYIARPLP RAHIKEYFYT SGKCSNPAVV FVTRKNRQVC ANPEKKWVRE YINSLEMS

Biological Activity: Biological activity was determined by its ability to chemoattract human blood monocytes at a concentration between 1 – 10 ng/ml

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<i>small</i>	5 μ g	Cat.N°	11343190
<i>medium</i>	20 μ g	Cat.N°	11343194
<i>large</i>	100 μ g	Cat.N°	11343196
<i>x-large</i>	500 μ g	Cat.N°	11343197

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Recombinant Human sCD40 Ligand/TRAP (rh sCD40L / CD154)

Synonyms: soluble CD40-L, Tumor necrosis factor ligand superfamily member 5 (TNFSF5), TNF-related activation protein (TRAP), T cell antigen Gp39

Introduction: rh sCD40L is a membrane glycoprotein and differentiation antigen expressed on the surface of T-cells. The sCD40L stimulates B-cell proliferation and secretion of all immunoglobulin isotypes in the presence of cytokines. The sCD40L has been shown to induce cytokine production and tumoricidal activity in peripheral blood monocytes. It also costimulates proliferation of activated T-cells and this is accompanied by the production of IFN-gamma, TNF-alpha and IL2.

Description: rh sCD40L/TRAP produced in *E.Coli* is a non-glycosylated, polypeptide chain containing 149 amino acids and having a molecular mass of 16308 Dalton. The sCD40L/TRAP is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: 0.22 µm filtered solution in 25 mM sodium phosphate, 100 mM NaCl, pH 7.7,

Solubility: It is recommended to reconstitute the lyophilized rh sCD40L/TRAP in sterile water not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh sCD40L/TRAP although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Reconstituted rh sCD40L/TRAP should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 98.0% as determined by RP-HPLC and by SDS-PAGE.

Amino Acid Sequence: MQKGDQNPQI AAHVISEASS KTTSVLQWAE KGYTMSNNL VTLENGKQLT VKRQGLYYIY AQVTFCSNRE ASSQAPFIAS LWLKSPGRFE RILLRAANTH SSAKPCGQQS IHLGGVFELQ PGASVFNVT DPSQVSHGTG FTSFGLLKL

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Biological Activity: The ED₅₀ as determined by the dose-dependant stimulation of IL-12 & IL-8 induction by PMB (peripheral mononuclear cells) was found to be 10 - 100 ng/ml.

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<i>small</i>	10 µg	Cat.N°	11343343
<i>medium</i>	50 µg	Cat.N°	11343345
<i>large</i>	250 µg	Cat.N°	11343347
<i>x-large</i>	1000 µg	Cat.N°	11343348

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Recombinant Human Stem Cell Factor (rh SCF) source E. coli

Synonyms: Kit ligand Precursor, KL-1, C-kit ligand, Mast cell growth factor, MGF, Steel Factor, SF

Introduction: Stem cell factor is a cytokine which binds CD117(c-Kit). SCF exists in two forms, cell surface bound SCF and soluble (or free) SCF. Soluble SCF is produced by the cleavage of surface bound SCF by metalloproteases. SCF is a growth factor important for the survival, proliferation, and differentiation of hematopoietic stem cells and other hematopoietic progenitor cells. One of its roles is to change the BFU-E (burst-forming unit-erythroid) cells which are the earliest erythrocyte precursors in the erythrocytic series into the CFU-E (colony-forming unit-erythroid). In vitro and in vivo SCF can stimulate the proliferation of mature, as well as the proliferation and maturation of immature, mast cells. On purified primitive human and mouse hematopoietic precursors, SCF acts in a synergistic manner with various growth factors, such as IL-1, IL-3, IL-6, IL-7 and Epo, to induce myeloid, erythroid and lymphoid lineage colony formation. Murine or rat soluble SCF is highly homologous to human soluble SCF (approximately 80%). Whereas both rat and mouse SCF are active on human cells, the human protein is much less active on mouse or rat cells.

Description: Recombinant human SCF produced in *E. Coli* is a single, non-glycosylated polypeptide chain containing 165 amino acids and having a molecular mass of 18.4 kDa. The rh SCF is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22µm filtered solution in water containing 10 mM acetic acid. The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh SCF in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh SCF although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh SCF should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino Acid Sequence: MEGICRNRVT NNVKDVTKLV ANLPKDYMIT LKYVPGMDVL PSHCWISEMV VQLSDSLTDL LDKFSNISEG LSNYSIIDKL VNIVDDLVEC VKENSSKDLK KSFKSPEPRL FTPEEFFRIF NRSIDAFKDF VVASETSDCV VSSTLSPEKD SRVSVTKPFM LPPVA

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Biological Activity: The ED₅₀ as determined by the dose-dependant stimulation of human TF-1 cells is < 2 ng/ml, corresponding to a specific activity of 5 x 10⁵ IU/mg.

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<i>small</i>	2 µg	Cat.N°	11343322
<i>medium</i>	10 µg	Cat.N°	11343323
<i>large</i>	50 µg	Cat.N°	11343325
<i>x-large</i>	250 µg	Cat.N°	11343327
<i>xx-large</i>	1000 µg	Cat.N°	11343328

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Recombinant Human Stromal Cell-Derived Factor-1 alpha (rh SDF-1alpha / rh CXCL12α)

Synonyms: Pre-B cell growth-stimulating factor (PBSF), chemokine (C-X-C motif) ligand 12, SCYB12, TLSF-a.

Introduction: SDF-1 produced in two forms, SDF-1α/CXCL12a and SDF-1β/CXCL12b, by alternate splicing of the same gene. The SDF-1 proteins belong to the group of CXC chemokines, whose initial pair of cysteines are separated by one intervening amino acid. SDF-1alpha is strongly chemotactic for lymphocytes and has been implicated as an important cell co-ordinator during development. During embryogenesis it directs the migration of hematopoietic cells from foetal liver to bone marrow. Mice which were knocked-out for SDF-1 gene were lethal before the birth or within just 1 hour of life. As another role, SDF-1alpha alters also the electrophysiology of neurons. SDF-1 was shown to be expressed in many tissues in mice (including brain, thymus, heart, lung, liver, kidney, spleen and bone marrow). The receptor for this chemokine is CXCR4. This SDF-1-CXCR4 interaction used to be considered exclusive (unlike for other chemokines and their receptors), but recently it was suggested that SDF-1 is also bound by CXCR7 receptor. In human and mouse both SDF-1 and CXCR4 show high identity of sequence: 99% and 90%, respectively.

Description: Recombinant human SDF-1 alpha produced in *E. Coli* is a non-glycosylated, polypeptide chain containing 68 amino acids and having a molecular mass of 8008 Dalton. The rh SDF-1 alpha is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 μm filtered solution in 50 mM Sodium phosphate, 50 mM NaCl, pH 7.8. The aliquots of 1 μg and 2 μg contain Trehalose 5% (w/vol) for better recovery.

Solubility: It is recommended to reconstitute the lyophilized rh SDF-1alpha in sterile H₂O not less than 100 μg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh SDF-1 alpha although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95.0% as determined by SDS-PAGE.

Amino acid Sequence: KPVLSYRCP CRFFESHVAR ANVKHLKILN TPNCALQIVA RLKNNNRQVC
IDPKLKWIQE YLEKALNK

Endotoxicity: The endotoxin level is less than 1 EU / μg determined by LAL method.

Biological Activity: The specific activity as determined by its ability to chemoattract human peripheral T cells activated with PHA and IL-2 using a concentration of 20 - 80 ng/ml.

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<i>small</i>	2 μg	Cat.N°	11343362
<i>medium</i>	10 μg	Cat.N°	11343363
<i>large</i>	50 μg	Cat.N°	11343365
<i>x-large</i>	250 μg	Cat.N°	11343367
<i>xx-large</i>	1000 μg	Cat.N°	11343368

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Recombinant Human Stromal Cell-Derived Factor-1 beta (rh SDF-1 beta / rh CXCL12 β)

Synonyms: Pre-B cell growth-stimulating factor, PBSF, hIRH, TPAR1, SCYB12, TLSF-b.

Introduction: SDF-1 is produced in two forms, SDF-1 α /CXCL12a and SDF-1 β /CXCL12b, by alternate splicing of the same gene. The SDF-1 proteins belong to the group of CXC chemokines whose initial pair of cysteines are separated by one intervening amino acid. SDF-1 is strongly chemotactic for lymphocytes and has been implicated as an important cell co-ordinator during development. During embryogenesis it directs the migration of hematopoietic cells from foetal liver to bone marrow. Mice which were knocked-out for SDF-1 gene were lethal before the birth or within just 1 hour of life. As another role, SDF-1 alters also the electrophysiology of neurons. SDF-1 was shown to be expressed in many tissues in mice (including brain, thymus, heart, lung, liver, kidney, spleen and bone marrow). The receptor for this chemokine is CXCR4, which was previously called fusin. This SDF-1-CXCR4 interaction used to be considered exclusive (unlike for other chemokines and their receptors), but recently it was suggested that SDF-1 is also bound by CXCR7 receptor. The gene for SDF-1 is located on human chromosome 10. In human and mouse both SDF-1 and CXCR4 show high identity of sequence: 99% and 90%, respectively.

Description: Recombinant human SDF-1 beta produced in E.Coli is a non-glycosylated, polypeptide chain containing 72 amino acids and having a molecular mass of 8.5 kDa. The SDF-1b is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a concentrated solution in water containing no additives. The aliquots of 1 μ g and 2 μ g contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh SDF-1beta in sterile H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh SDF-1 beta although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rh SDF-1 beta should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 98.0% as determined by RP-HPLC and by SDS-PAGE.

Amino acid Sequence: The sequence of the first five N-terminal amino acids was determined and was found to be Lys-Pro-Val-Ser-Leu.

Endotoxicity: The endotoxin level is less than 1 EU / μ g determined by LAL method.

Biological Activity: The specific activity as determined by its ability to chemoattract human peripheral T cells activated with PHA and IL-2 using a concentration of 20 - 80 ng/ml.

This material is offered for **research only**. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

<i>small</i>	2 μ g	Cat.N°	11343932
<i>medium</i>	10 μ g	Cat.N°	11343933
<i>large</i>	50 μ g	Cat.N°	11343935

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Recombinant Human Thymus & Activation Regulated Chemokine (rh TARC / rh CCL17)

Synonyms: Small-inducible cytokine A17, CC chemokine TARC, ABCD-2, SCYA17,

Introduction: TARC cDNA encodes a 94 amino acid precursor protein with a 23 amino acid residue signal peptide that is cleaved off to generate the 71 amino acid residue mature secreted protein. Along with CC chemokine family members, CCL-17 has approximately 24-29% amino acid sequence identity with RANTES, MIP-1 α , MIP-1 β , MCP-1, MCP-2, MCP-3 and I-309. TARC is expressed in thymus, and at a lower level in the lung, colon, and small intestine. TARC is in addition transiently expressed in stimulated peripheral blood mononuclear cells. Recombinant TARC has been shown to be chemotactic for T cell lines but not monocytes or neutrophils. It was recently identified to be a specific functional ligand for CCR4, a receptor that is selectively expressed on T cells. TARC is one of quite a few Cys-Cys (CC) cytokine genes clustered on the q arm of chromosome 16, shows chemotactic activity for T lymphocytes, but not monocytes or granulocytes and binds to chemokine receptors CCR4 and CCR8. This chemokine plays important roles in T cell development in thymus as well as in trafficking and activation of mature T cells.

Description: Recombinant human TARC produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 71 amino acids and having a molecular mass of 8 kDa. The TARC is purified by proprietary chromatographic techniques.

Source: Escherichia Coli

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 μ m filtered solution in 25 mM sodium phosphate, 400 mM NaCl. The samples of 1 μ g contain Trehalose 5% (w/vol) for better recovery.

Solubility: It is recommended to reconstitute the lyophilized rh TARC in sterile 18M Ω -cm H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh TARC although stable at room temperature for 3 weeks, should be stored desiccated below -18 $^{\circ}$ C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE

Endotoxicity: The endotoxin level is less than 1 EU / μ g determined by LAL method

Amino Acid Sequence: ARGTNVGRECCLEYFKGAIPLRKLKTWYQTSSEDCSRDAIVFVTVQGGAICSDPNNK RVKNAV KYLQSLERS.

Biological Activity: Determined by its ability to chemoattract human T-lymphocytes within a concentration range of 1 - 10 ng/ml.

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<i>small</i>	5 μ g	Cat.N $^{\circ}$	11344500
<i>medium</i>	20 μ g	Cat.N $^{\circ}$	11344504
<i>large</i>	100 μ g	Cat.N $^{\circ}$	11344506
<i>x-large</i>	500 μ g	Cat.N $^{\circ}$	11344507

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Recombinant Human Transforming Growth Factor-beta 3 (rh TGF-beta 3)

Introduction: The three mammalian isoforms of TGF- β - TGF- β 1, β 2, β 3 - 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 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. The physiological role of TGF- β 3 is still unknown but its expression pattern suggests a role in the regulation of certain development processes.

Description: Recombinant human TGF-beta 3 produced in E.Coli is a disulfide-linked homodimeric, non-glycosylated, polypeptide chain containing two 112 amino acid chains and having a total molecular mass of 25.5kDa. The rh TGF-beta 3 is purified by standard chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered lyophilized powder.

Formulation: Lyophilized from a 0.22 μ m filtered solution in 100mM acetic acid
The aliquots of 1 μ g and 2 μ g contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute lyophilized TGF-beta 3 in sterile H₂O not less than 100 μ g/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized TGF-beta 3 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution TGF-beta 3 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino Acid Sequence: ALDTNYCFR NLEENCCVRP LYIDFRQDLG WKWVHEPKGY YANFCSGPCP YLRSA DTTHS TVLGLYNTLN PEASAPCCV PQDLEPLTIL YYVGRTPKVE QLSNMVVKSC KCS

Biological Activity: Determined by hTGF-beta3 induced induced STAT activation hTGF β -receptor transfected murine Ba/F3 cells the ED50 is < 0.05 ng/ml.

Endotoxicity: The endotoxin level is less than 1 EU / μ g determined by LAL method

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<i>small</i>	2 μ g	Cat.N°	11344482
<i>medium</i>	10 μ g	Cat.N°	11344483
<i>large</i>	50 μ g	Cat.N°	11344485
<i>x-large</i>	250 μ g	Cat.N°	11344487

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Recombinant Human Tumor Necrosis Factor-alpha (rh TNF-alpha)

Synonyms: Tumor necrosis factor ligand superfamily member 2, Cachectin, DIF, TNFSF2, Necrosin, Cytotoxin.

Introduction: Tumor necrosis factor is a cytokine involved in systemic inflammation and is a member of a group of cytokines that all stimulate the acute phase reaction. TNFalpha is mainly secreted by macrophages. TNFalpha causes apoptotic cell death, cellular proliferation, differentiation, inflammation, tumorigenesis and viral replication and is also involved in lipid metabolism and coagulation. TNF's primary role is in the regulation of immune cells. Dysregulation and in particular overproduction of TNFalpha have been implicated in a variety of human diseases- autoimmune diseases, insulin resistance and cancer.

Description: Recombinant human TNF-alpha produced in *E. Coli* is a single, non-glycosylated polypeptide chain containing 158 amino acids and having a molecular mass of 17483.77 Dalton. The rh TNF-alpha is purified by standard chromatographic techniques.

Source: *Escherichia Coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilised from a 0.2 µm filtered solution in 25mM sodium acetate pH 6.5 containing 200mM NaCl.

The aliquots of 1µg contain Trehalose 5% (w/vol) for better recovery.

Solubility: It is recommended to reconstitute the lyophilized rh TNF-alpha in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh TNF-alpha although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh TNF-alpha should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 98.0% as determined by SDS-PAGE.

Amino Acid Sequence: The sequence of the first five N-terminal amino acids was determined and was found to be Met-Val-Arg-Ser-Ser.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method

Biological Activity: The ED₅₀ as determined by the cytolysis of murine L929 cells in the presence of Actinomycin D is < 0.05 ng/ml, corresponding to a specific activity of 2 x 10⁷ IU/mg.

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<i>small</i>	10 µg	Cat.N°	11343013
<i>medium</i>	50 µg	Cat.N°	11343015
<i>large</i>	250 µg	Cat.N°	11343017
<i>x-large</i>	1000 µg	Cat.N°	11343018

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Recombinant Human TRAIL/APO 2 Ligand (rh TRAIL / CD253)

Synonyms: Tumor necrosis factor ligand superfamily member 10 (TNFSF10), TNF-related apoptosis-inducing ligand, Apo-2 ligand (APO2L)

Introduction: TRAIL is a ligand molecule which induces apoptosis. It is a type II transmembrane protein with homology to other members of the tumor necrosis factor family.

In humans, the gene that encodes for TRAIL is located at chromosome 3q26. TRAIL binds to the death receptors, DR4 and DR5. The process of apoptosis is caspase-8-dependent. TRAIL preferentially induces apoptosis in transformed and tumor cells, but does not appear to kill normal cells although it is expressed at a significant level in most normal tissues.

Description: Recombinant human TRAIL produced in *E.Coli* is a single, non-glycosylated, polypeptide chain containing 168 amino acids and having a total molecular mass of 19.6 kDa. rhTRAIL is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22 µm filtered solution in 400 mM (NH₄)₂SO₄, 20 µM ZnSO₄, pH 7.5
The aliquots/samples of 1µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh TRAIL in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized TRAIL although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution TSLP should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino acid sequence: MRERGPQRVA AHITGTRGRS NTLSSPNSKN EKALGRKINS WESSRSGHSF
LSNLHLRNGE LVIHEKGFYY IYSQTYFRFQ EEIKENTKND KQMVQYIYKY TSYPDPILLM
KSARNCSWSK DAEYGLYSIY QGGIFELKEN DRIFVSVTNE HLIDMDHEAS FFGAFLVG

Biological Activity: Determined by its ability to induce apoptosis of a human TRAIL sensitive cell line ED50 is 3 - 6 ng/ml.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

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<i>small</i>	10 µg	Cat.N°	11344913
<i>medium</i>	50 µg	Cat.N°	11344915
<i>large</i>	250 µg	Cat.N°	11344917

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Recombinant Human Thymic Stromal Lymphopoietin (rh TSLP)

Introduction: TSLP protein is a hemopoietic cytokine which signals throughout a heterodimeric receptor complex composed of the thymic stromal lymphopoietin receptor & the Interleukin-7 receptor alpha chain. TSLP impacts myeloid cells thus induces the discharge of T cell-attracting chemokines from monocytes & increases the growth of CD11c(+) dendritic cells. TSLP is mainly expressed in the heart, liver and prostate. TSLP is related in its biological activities with IL-7 and binds with the heterodimeric receptor complex consisting of the Interleukin-7 receptor alpha chain & the TSLPR. Similar to IL-7, TSLP enhances phosphorylation of STAT3 and STAT5, though uses kinases excluding JAKs for its activation. TSLP induces the release of T cell-attracting chemokines such as TARC & MDC from monocytes & triggers CD11c(+) dendritic cells. TSLP activated dendritic cells primes naive T cells to manufacture pro-allergic cytokines such as Interleukin-4, Interleukin-5, Interleukin-13 and TNF-alpha whereas down-regulating Interleukin-10 and IFN-gamma play a role in the initiation of allergic inflammation.

Description: Recombinant human Thymic Stromal Lymphopoietin produced in E.Coli is a single, non-glycosylated polypeptide chain containing 132 amino acids and having a molecular mass of 15 kDa.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a 0.22µm filtered solution in phosphate buffered saline, pH 7.2. The aliquots/samples of 1µg contain Trehalose 5% (w/vol) for better recovery

Reconstitution: It is recommended to reconstitute the lyophilized TSLP in sterile H₂O not less than 100µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized TSLP although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution TSLP should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95.0% as determined by SDS-PAGE / silver stain.

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method.

Amino acid sequence: MYDFTNCDFE KIKAAAYLSTI SKDLITYMSG TKSTEFNNTV SCSNRPHCLT
EIQSLTFNPT AGCASLAKEM FAMKTKAALA IWCPGYSETQ INATQAMKKR RKRKVTTNKC LEQVSQLQGL
WRRFNRPLLK QQ

Biological Activity: By testing its ability to induce STAT activation in Ba/F3 h TSLPR transfectants the ED₅₀ is found to be < 0.3 ng/ml.

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<i>small</i>	5 µg	Cat.N°	11343490
<i>medium</i>	20 µg	Cat.N°	11343494
<i>large</i>	100 µg	Cat.N°	11343496
<i>x-large</i>	500 µg	Cat.N°	11343497

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Recombinant Human Vascular Endothelial Growth Factor-A (rh VEGF-A)

Synonyms: VEGF-165, Vascular permeability factor (VPF)

Introduction: Vascular endothelial growth factor is important signaling protein involved in both vasculogenesis and angiogenesis. As its name implies, VEGF activity has been mostly studied on cells of vascular endothelium, although it does have effects on a number of other cell types (e.g. stimulation monocyte/ macrophage migration, neurons, cancer cells, kidney epithelial cells). VEGF mediates increased vascular permeability, induces angiogenesis, vasculogenesis and endothelial cell mitogenesis and cell migration. VEGF is also a vasodilator and increases microvascular permeability and was originally referred as vascular permeability factor. Elevated levels of this protein is linked to POEMS syndrome, also known as Crow- Fukase syndrome. Mutations in this gene have been associated with proliferative and nonproliferative diabetic retinopathy.

Description: Recombinant human VEGF-A produced in *E. Coli* is a double, non-glycosylated, polypeptide chain containing 165 amino acids and having a molecular mass of 38.2 kDa. The rh VEGF-A is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a concentrated (1 mg/ml) solution containing 50mM acetic acid. The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh VEGF-A in sterile water or aqueous buffers not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh VEGF-A although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh VEGF-A should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Biological Activity: The ED₅₀ for stimulation of ³H-thymidine incorporation and cell proliferation by human umbilical vein endothelial cells for VEGF-A has been determined to be in the range of 1-2 ng/ml.

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<i>small</i>	2 µg	Cat.N°	11343662
<i>medium</i>	10 µg	Cat.N°	11343663
<i>large</i>	50 µg	Cat.N°	11343665
<i>x-large</i>	250 µg	Cat.N°	11343667

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Recombinant Human Vascular Endothelial Growth Factor 121 (rh VEGF-121)

Synonyms: Vascular endothelial growth factor A, Vascular permeability factor, VPF, VEGF

Introduction: Vascular endothelial growth factor is important signaling protein involved in both vasculogenesis and angiogenesis. As its name implies, VEGF activity has been mostly studied on cells of vascular endothelium, although it does have effects on a number of other cell types (e.g. stimulation monocyte/ macrophage migration, neurons, cancer cells, kidney epithelial cells). VEGF mediates increased vascular permeability, induces angiogenesis, vasculogenesis and endothelial cell mitogenesis and cell migration. VEGF is also a vasodilator and increases microvascular permeability and was originally referred as vascular permeability factor. Elevated levels of this protein is linked to POEMS syndrome, also known as Crow- Fukase syndrome. Mutations in this gene have been associated with proliferative and nonproliferative diabetic retinopathy. VEGF121 circulates more freely than other VEGF forms which bind more tightly with vascular heparin sulfates.

Description: Recombinant human VEGF-121 produced in *E. Coli* is a double, non-glycosylated, polypeptide chain containing 121 amino acids and having a molecular mass of 28.4 kDa. The rh VEGF-121 is purified by proprietary chromatographic techniques.

Source: *Escherichia Coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: Lyophilized from a concentrated solution with no additives. The aliquots of 1µg and 2µg contain Trehalose 5% (w/vol) for better recovery

Solubility: It is recommended to reconstitute the lyophilized rh VEGF-121 in sterile water not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh VEGF-121 although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh VEGF-121 should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino Acid Sequence: MPMAEGGGQNHHEVVKFMDV
YQRSYCHPIETLVDIFQEYPDEIEYIFKPSCVPLMRCGGC CNDEGLECVPTTEESNITMQI
MRIKPHQQGHIGEMSFLQHN KCECRPKKDRARQEKCCKPRR

Biological Activity: Determined by the dose-dependent stimulation of the proliferation of human umbilical vein endothelial cells (HUVEC) using a concentration range of 0.2 - 0.4 ng/ml.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

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<i>small</i>	2 µg	Cat.N°	11344682
<i>medium</i>	10 µg	Cat.N°	11344683
<i>large</i>	50 µg	Cat.N°	11344685
<i>x-large</i>	250 µg	Cat.N°	11344687

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Recombinant Human Interleukin-2 Biotin conjugated (rh IL-2 Biotin)

Introduction: IL-2 is a secreted cytokine that is important for the proliferation of T and B lymphocytes. The receptor of this cytokine is a heterotrimeric protein complex whose gamma chain is also shared by Interleukin 4 and Interleukin 7. The expression of this gene in mature thymocytes is monoallelic which represents an unusual regulatory mode for controlling the precise expression of a single gene. The targeted disruption of a similar gene in mice leads to ulcerative colitis-like disease which suggests an essential role of this gene in the immune response to antigenic stimuli.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: 0.22 µm filtered solution in 25 mM sodium phosphate, 200 mM NaCl, pH 7.5, lyophilised

Solubility: Vial should be centrifuged before opening! Reconstitute in sterile endotoxin free water to a concentration not less than 100 µg/ml.

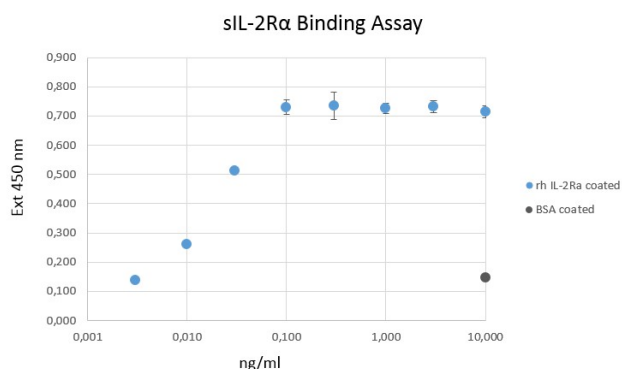
Stability: Lyophilized rh IL-2 Biotin although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-2 Biotin should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE Silver stain.

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Amino acid Sequence: MAPTSSSTKK TQLQLEHLLL DLQMILNGIN NYKNPKLTRM LTFKFYMPKK ATELKHLQCL EEELKPLEEV LNLAQSKNFH LRPRDLISNI NVIVLELKGS ETTFMCEYAD ETATIVEFLN RWITFCQSII STLT

Biological Activity: Measured by functional ELISA: rh IL-2-BIOTIN binds to rh sIL-2Rα (1 µg/ml) coated on ELISA plate. Half maximum binding signal is produced at a concentration of < 30 ng/ml



<i>small</i>	2 µg	Cat.N°	1134B0022
<i>medium</i>	10 µg	Cat.N°	1134B0023
<i>large</i>	50 µg	Cat.N°	1134B0025

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Recombinant Human Interleukin-3 Biotin conjugated (rh IL-3 Biotin)

Introduction: Rh IL-3 is a potent growth promoting cytokine. This cytokine is a species specific colony stimulating factor which stimulates colony formation of megakaryocytes, neutrophils, and macrophages from bone marrow cultures. Produced by T cells, mast cells and eosinophils, IL-3 enhances thrombopoieses, 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. It is involved in a variety of cell activities such as cell growth, differentiation and apoptosis. IL-3 has been also shown to possess neurotrophic activity and may be associated with neurologic disorders.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: 0.2 µm filtered protein solution in PBS pH 7.2.

Solubility: Vial should be centrifuged before opening! Reconstitute in sterile endotoxin free water to a concentration not less than 100 µg/ml.

Stability: Lyophilized rh IL-3 Biotin although stable at room temperature for 3 weeks, should be stored desiccated below -18° C . Upon reconstitution rh IL-3 Biotin should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95% (verified by SDS-PAGE / silver stain)

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Amino Acid Sequence: APMTQTTPLK TSWVNCNMI DEIITHLKQP PLPLDFNNL NGEDQDILME
NNLRRPNLEA FNRAVKSLQN ASAIESILKN LLPCLPLATA APTRHPIHIK DGDWNEFRRK LTFYKLTLEN
AQAQQTTLSL AIF

Biological Activity: The ED₅₀ as determined by dose-dependent stimulation of TF-1 cells is < 1 ng/ml, corresponding to a specific activity of 1,000,000 IU/mg.

<i>small</i>	2 µg	Cat.N°	1134B0032
<i>medium</i>	10 µg	Cat.N°	1134B0033
<i>large</i>	50 µg	Cat.N°	1134B0035

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Recombinant Human Interleukin-4 Biotin conjugated (rh IL-4 Biotin)

Introduction: rh IL-4 is a pleiotropic cytokine produced by activated T cells. IL-4 is a ligand for Interleukin 4 receptor. The Interleukin 4 receptor also binds to IL-13 which may contribute to many overlapping functions of this cytokine and IL-13. STAT6, a signal transducer and activator of transcription, has been shown to play a central role in mediating the immune regulatory signal of this cytokine. This gene, IL-3, IL-5, IL-13 and GM-CSF form a cytokine gene cluster on chromosome 5q, with this gene particularly close to IL-13. IL-4, IL-13 and IL-5 are found to be regulated coordinately by several long-range regulatory elements in an over 120 kilobase range on the chromosome. Two alternatively spliced transcript variants of this gene encoding distinct isoforms have been reported.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: 0.22 µm filtered solution in 25 mM sodium phosphate, 200 mM NaCl, pH 7.5, lyophilised

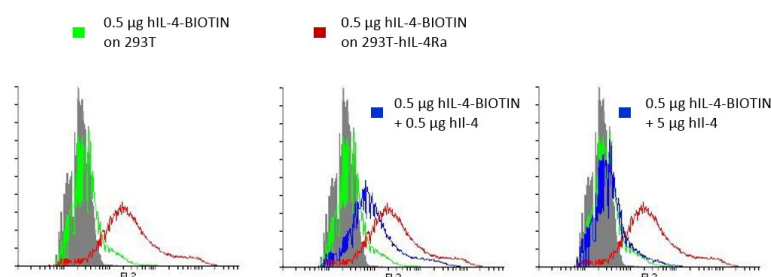
Solubility: Vial should be centrifuged before opening! Reconstitute in sterile endotoxin free water to a concentration not less than 100 µg/ml.

Stability: Lyophilized rh IL-4 Biotin although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-4 Biotin should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95% (verified by SDS-PAGE / silver stain)

Amino acid sequence: MHKCDITLQE IIKTLNSLTE QKTLCTELTV TDIFAASKNT TEKETFCAA TVLRQFYSHH EKDTRCLGAT AQQFHRHKQL IRFLKRLDRN LWGLAGLNSC PVKEANQSTL ENFLERLTKI MREKYSKCSS

Biological Activity: Tested by binding on IL-4Rα transfected HEK-293T cells: rh IL-4-BIOTIN yields strong binding signal at 0.5 µg/100 µl on 293T-hIL-4Rα cells. Binding is blocked by competition with unconjugated rh IL-4



Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method

<i>small</i>	2 µg	Cat.N°	1134B0042
<i>medium</i>	10 µg	Cat.N°	1134B0043
<i>large</i>	50 µg	Cat.N°	1134B0045

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Recombinant Human Interleukin 6 Biotin conjugate (rh IL-6 Biotin)

Introduction: IL-6 is a pleiotropic cytokine that plays important roles in acute phase reaction, antigen specific immune responses and hematopoiesis. Main sources of Interleukin-6 are monocytes, T-cells, fibroblasts and endothelial cells. IL-6 is a major mediator of acute phase reaction, it functions as B-cell differentiation factor (BCDF) and induces the proliferation of thymocytes. Moreover it has neurotrophic activity on certain neuronal cell types. IL-6 is also known to act as autocrine growth modulator of some tumor types.

Source: *Escherichia Coli*

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: 0.22 µm filtered solution in 25 mM sodium phosphate, 200 mM NaCl, pH 7.5, lyophilised

Solubility: Vial should be centrifuged before opening! Reconstitute in sterile endotoxin free water to a concentration not less than 100 µg/ml.

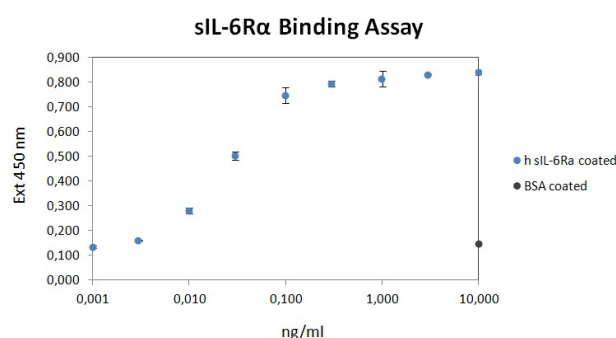
Stability: Lyophilized rh IL-6 Biotin although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh IL-6 Biotin should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95% (verified by SDS-PAGE / silver stain)

Endotoxicity: The endotoxin level is less than 1 EU/µg determined by LAL method.

Amino acid sequence: MPVPPGEDSKDVAAPHRQPLTSSERIDKQIRYILDGISALR
KETCNKSNMCESSKEALAENLNLPKMAEKDGCFSQGFN EETCLVKIITGLLEFEVYLEYLQNRFEESSEEQARAVQMSTK
VLIQFLQKKAKNLDAITTPDPTTNASLLTKLQAQNQWLQD MTTHLILRSFKEFLQSSLRALRQM

Biological Activity: Measured by functional ELISA: rh IL-6-BIOTIN binds to rh sIL-6Rα (1 µg/ml) coated on ELISA plate. Half maximum binding signal is produced at a concentration of < 30 ng/ml



<i>small</i>	2 µg	Cat.N°	1134B0062
<i>medium</i>	10 µg	Cat.N°	1134B0063
<i>large</i>	50 µg	Cat.N°	1134B0065

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Recombinant Human Stem Cell Factor Biotin conjugated (rh SCF Biotin) source E. coli

Introduction: Stem cell factor is a cytokine which binds CD117(c-Kit). SCF exists in two forms, cell surface bound SCF and soluble (or free) SCF. Soluble SCF is produced by the cleavage of surface bound SCF by metalloproteases. SCF is a growth factor important for the survival, proliferation, and differentiation of hematopoietic stem cells and other hematopoietic progenitor cells. One of its roles is to change the BFU-E (burst-forming unit-erythroid) cells which are the earliest erythrocyte precursors in the erythrocytic series into the CFU-E (colony-forming unit-erythroid). In vitro and in vivo SCF can stimulate the proliferation of mature, as well as the proliferation and maturation of immature, mast cells. On purified primitive human and mouse hematopoietic precursors, SCF acts in a synergistic manner with various growth factors, such as IL-1, IL-3, IL-6, IL-7 and Epo, to induce myeloid, erythroid and lymphoid lineage colony formation. Murine or rat soluble SCF is highly homologous to human soluble SCF (approximately 80%). Whereas both rat and mouse SCF are active on human cells, the human protein is much less active on mouse or rat cells.

Source: *Escherichia Coli*.

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder.

Formulation: 0.2 µm filtered protein solution in PBS pH 7.2.

Solubility: It is recommended to reconstitute the lyophilized rh SCF in sterile H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh SCF Biotin although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh SCF Biotin should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity: 95% (verified by SDS-PAGE / silver stain)

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

Amino Acid Sequence: MEGICRNRVT NNVKDVTKLV ANLPKDYMIT LKYVPGMDVL PSHCWISEMV
VQLSDSLTDL LDKFSNISEG LSNYSIIDKL VNIVDLVEC VKENSSKDLK KSKFSPEPRL FTPEEFFRIF
NRSIDAFKDF VVASETSDCV VSSTLSPEKD SRVSVTKPFM LPPVA

Biological Activity: The ED₅₀ as determined by dose-dependent stimulation of TF-1 cells is < 2 ng/ml, corresponding to a specific activity of 500,000 IU/mg.

<i>small</i>	2 µg	Cat.N°	1134B3322
<i>medium</i>	10 µg	Cat.N°	1134B3323
<i>large</i>	50 µg	Cat.N°	1134B3325

This material is offered for research only. Not for use in human. For in vitro use only. ImmunoTools will not be held responsible for patent infringement or other violations that may occur with the use of our products.

ImmunoTools Excellent Quality - Advantageously priced

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Recombinant Human Interleukin 6 Soluble Receptor (rh sIL-6R / CD126)

Synonyms: IL6R-alpha, B cell stimulatory factor-2, Membrane glycoprotein 80

Introduction: The IL-6 receptor complex is composed of two membrane glycoproteins: the low affinity receptor and the signaltransducing component. The soluble form of IL6R is found in the urine of healthy adult humans and the serum of HIV positive individuals as well as in the cell culture supernatants of stimulated PBMC's. This soluble form of IL6R results from either proteolytic cleavage from the membrane, or an isoform derived splice variant.

Description: Recombinant soluble human Interleukin-6 receptor alpha chain (Leu20 - Asp358) containing an amino-terminal His-Tag purified from secreted expression in HEK-293.

Source: HEK-293

Physical Appearance: Sterile filtered white lyophilized (freeze-dried) powder

Formulation: lyophilized from a 0.22 µm filtered solution in PBS

Solubility: It is recommended to reconstitute the lyophilized rh sIL-6R in sterile H2O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability: Lyophilized rh sIL-6R although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh sIL-6R should be stored at 4° C between 2-7 days and for future use below -18° C. Please prevent freeze-thaw cycles.

Purity: Greater than 95.0% as determined by SDS-PAGE.

Amino Acid Sequence: HHHHHHHHLAPRRCPAQEVA RGVLTSLPGDSVTLTCPGVE
EDNATVHWVLRKPAAGSHP SRWAGMGRLLLRSVQLHDS GNYSCYRAGRPAGTVHLLVD
VPPEEPQLSCFRKSPNSNV CEWGPRSTPSLTTKAVLLVR KFNQSPAEDFQEPCCQYSQES
QKFSCQLAVPEGDSSFYIVS MCVASSVGSKFSKTQTFQGC GILQPDPPANITVTAVARNP
RWLSVTWQDPHSWNSSFYRL RFELRYRAERSKTFTTWMVK DLQHHCVIHDAWGLRHVVQ
LRAQEEFGQGEWSEWSPEAM GTPWTESRSPPAENEVSTPM QALTTNKDDDNILFRDSANA TSLPVQD

Endotoxicity: The endotoxin level is less than 1 EU / µg determined by LAL method.

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<i>small</i>	5 µg	Cat.N°	11346060
<i>medium</i>	20 µg	Cat.N°	11346064
<i>large</i>	100 µg	Cat.N°	11346066

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