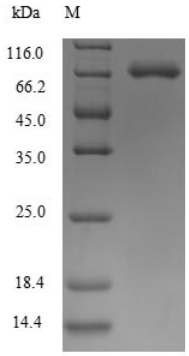
Recombinant Human Semaphorin-7A (SEMA7A)

Product Code	CSB-YP021000HU
Relevance	Plays an important role in integrin-mediated signaling and functions both in regulating cell migration and immune responses. Promotes formation of focal adhesion complexes, activation of the protein kinase PTK2/FAK1 and subsequent phosphorylation of MAPK1 and MAPK3. Promotes production of proinflammatory cytokines by monocytes and macrophages. Plays an important role in modulating inflammation and T-cell-mediated immune responses. Promotes axon growth in the embryonic olfactory bulb. Promotes attachment, spreading and dendrite outgrowth in melanocytes.
Abbreviation	Recombinant Human SEMA7A protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	O75326
Alias	CDw108 JMH blood group antigen John-Milton-Hargen human blood group Ag Semaphorin-K1 Short name: Sema K1 Semaphorin-L Short name: Sema L CD_antigen: CD108
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	QGHLRSGPRIFAVWKGHVGQDRVDFGQTEPHTVLFHEPGSSSVWVGGRGKV YLFDFPEGKNASVRTVNIGSTKGSCLDKRDCENYITLLERRSEGLLACGTNAR HPSCWNLVNGTVVPLGEMRGYAPFSPDENSLVLFEGDEVYSTIRKQEYNGKIP RFRRIRGESELYTSDTVMQNPQFIKATIVHQDQAYDDKIYYFFREDNPDKNPEA PLNVSRVAQLCRGDQGGESSLSVSKWNTFLKAMLVCSDAATNKNFNRLQDVF LLPDPSGQWRDTRVYGVFSNPWNYSAVCVYSLGDIDKVFRTSSLKGYHSSLP NPRPGKCLPDQQPIPTETFQVADRHPEVAQRVEPMGPLKTPLFHSKYHYQKV AVHRMQASHGETFHVLYLTTDRGTIHKVVEPGEQEHSFAFNIMEIQPFRRAAAI QTMSLDAERRKLYVSSQWEVSQVPLDLCEVYGGGCHGCLMSRDPYCGWDQ GRCISIYSSERSVLQSINPAEPHKECPNPKPDKAPLQKVSLAPNSRYYLSCPME SRHATYSWRHKENVEQSCEPGHQSPNCILFIENLTAQQYGHYFCEAQEGSYF REAQHWQLLPEDGIMAEHLLGHACALA
Research Area	Cardiovascular
Source	Yeast
Target Names	SEMA7A
Protein Names	Recommended name: Semaphorin-7A Alternative name(s): CDw108 JMH blood group antigen John-Milton-Hargen human blood group Ag Semaphorin-K1 Short name= Sema K1 Semaphorin-L Short name= Sema L CD_antigen= CD108
Expression Region	45-648aa

Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	70.4kDa
Protein Length	Full Length of Mature Protein

Image



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

The first step of making this recombinant Human SEMA7A protein is synthesizing the SEMA7A gene, the synthesized gene is then cloned into an expression vector which is a cDNA plasmid that includes a promoter sequence and an antibiotic-resistant gene. It also has N-terminal 6xHis tag encoding a fusion tag for downstream protein purification or identification. The antibiotic-resistant gene enables the selection of cells carrying the plasmid in antibiotic-based media and then transfects cells with a DNA vector that contains the template and then culturing the cells so that they transcribe and translate the desired protein. The recombinant SEMA7A protein is purified by ion-exchange chromatography or affinity purification. And the purity is 90%+ by SDS-PAGE.

SEMA7A plays a role in both innate and adaptive immune systems. It is a strong stimulator of monocytes in innate immunity, inducing the generation of pro-inflammatory cytokines. While SEMA7A works as a regulator of the T-cell immune response in adaptive immunity due to its effects on T-cell proliferation. SEMA7A can regulate T cell responses via the $\alpha 1\beta 1$ integrin receptor. SEMA7A is a glycosylphosphatidylinositol (GPI)-anchored membrane protein with chemoattractant and chemorepulsive attributes. In addition to its role in guiding axon pathfinding during neuronal development, SEMA7A has diverse functions in morphogenesis and immune cell control.

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

Shelf Life

The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself.
Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life

of lyophilized form is 12 months at -20°C/-80°C.