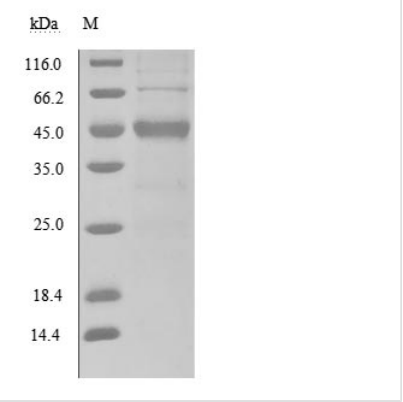
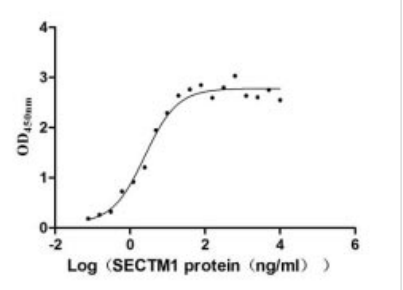
Recombinant Human Secreted and transmembrane protein 1 (SECTM1), partial (Active)

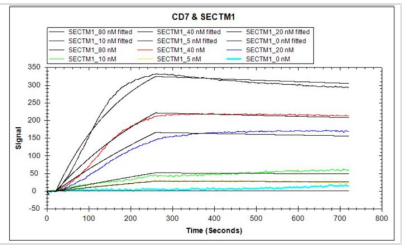
Product Code	CSB-MP819898HU
Abbreviation	Recombinant Human SECTM1 protein, partial (Active)
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	Q8WVN6
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered PBS, 6% Trehalose, pH 7.4
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Biological Activity	①Measured by its binding ability in a functional ELISA. Immobilized CD7 (CSB-MP004953HU) at 5 μg/ml can bind human SECTM1, the EC_{50} is 1.811-3.372 ng/ml.②Human CD7 protein hFc and Myc tag (CSB-MP004953HU) captured on COOH chip can bind Human SECTM1 protein hFc tag (CSB-MP819898HU) with an affinity constant of 1.84 nM as detected by LSPR Assay.
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	QNEGWDSPICTEGVVSVSWGENTVMSCNISNAFSHVNIKLRAHGQESAIFNEV APGYFSRDGWQLQVQGGVAQLVIKGARDSHAGLYMWHLVGHQRNNRQVTL EVSGAEPQSAPDTG
Research Area	Cancer
Source	Mammalian cell
Target Names	SECTM1
Expression Region	29-145aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	C-terminal hFc1-tagged
Mol. Weight	41.6 kDa
Protein Length	Partial
Image	



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



Activity
Measured by its binding ability in a functional ELISA. Immobilized CD7 (CSB-MP004953HU) at 5 μg/ml can bind human SECTM1, the EC_{50} is 1.811-3.372 ng/ml.



Activity
Human CD7 protein hFc and Myc tag (CSB-MP004953HU) captured on COOH chip can bind Human SECTM1 protein hFc tag (CSB-MP819898HU) with an affinity constant of 1.84 nM as detected by LSPR Assay.

Description

The recombinant human SECTM1 protein is created in mammalian cells using a plasmid containing the target gene that corresponds to the 29-145aa of the human SECTM1. The target gene is co-expressed with the C-terminal hFc-tag gene. SDS-PAGE demonstrates a purity of this SECTM1 protein exceeding 85%, and the endotoxin levels of this SECTM1 protein are below 1.0 EU/μg, as measured by the LAL method. ELISA testing confirms the SECTM1 protein's functional activity, showing its binding to the CD7 (CSB-MP004953HU) with an EC_{50} between 1.811 and 3.372 ng/mL. In an LSPR assay, the human CD7 protein (CSB-MP004953HU) captured on the COOH chip can bind to this human SECTM1 protein with an affinity constant of 1.84 nM.

Human SECTM1 (K12) is a transmembrane and secreted protein that plays a significant role in immune modulation and cellular signaling. It is primarily expressed in various immune cells, including T cells and NK cells, and is induced by IFN-γ [1][2][3]. SECTM1 functions as a co-stimulatory ligand for CD7, a glycoprotein found on T and NK cells, enhancing their activation and proliferation [2][4][5]. This interaction is crucial for the immune response, particularly in the context of infections and tumors, where SECTM1 can facilitate the recruitment and activation of immune cells [6][7].

In the context of cancer, SECTM1 is expressed in various malignancies, including breast and prostate cancers, where it may contribute to tumor progression by attracting monocytes through CD7-mediated signaling pathways [6][7]. Furthermore, studies have indicated that SECTM1 can enhance the expression of activation markers in NK cells, suggesting its potential utility in immunotherapy [2][5].

In addition to its role in T cell activation, SECTM1 has been implicated in various inflammatory processes. SECTM1 has been shown to promote neutrophil recruitment during lung infections, thereby contributing to the inflammatory response [8]. The protein's involvement in inflammation is further supported by its expression in conditions such as systemic sclerosis and its association with other inflammatory markers [1][3]. SECTM is also involved in the regulation of signaling pathways critical for cell survival and proliferation, such as the TGFβ/Smad pathway in glioblastoma [7].

References:

[1] T. Papadimitriou. Cd7 activation regulates cytotoxicity-driven pathology in systemic sclerosis, yielding a target for selective cell depletion, Annals of the Rheumatic Diseases, vol. 83, no. 4, p. 488-498, 2023. https://doi.org/10.1136/ard-2023-224827
[2] T. Wang, C. Huang, A. López-Coral, K. Slentz-Kesler, M. Xiao, E. Wherry, et al. K12/sectm1, an interferon-γ regulated molecule, synergizes with cd28 to costimulate human t cell proliferation, Journal of Leukocyte Biology, vol. 91, no. 3, p. 449-459, 2011. https://doi.org/10.1189/jlb.1011498
[3] Y. Li, S. Deng, X. Wang, W. Huang, J. Chen, N. Robbins, et al. Sectm1a deficiency aggravates inflammation-triggered cardiac dysfunction through disruption of lxrα signalling in macrophages, Cardiovascular Research, vol. 117, no. 3, p. 890-902, 2020. https://doi.org/10.1093/cvr/cvaa067
[4] R. Ehmann, K. Brandes, M. Antwerpen, M. Walter, K. Schlippenbach, E. Stegmaier, et al. Molecular and genomic characterization of a novel equine molluscum contagiosum-like virus, Journal of General Virology, vol. 102, no. 3, 2021. https://doi.org/10.1099/jgv.0.001357
[5] C. Georgiadis, J. Rasaiyaah, S. Gkazi, R. Preece, A. Etuk, A. Christi, et al. Base-edited car t cells for combinational therapy against t cell malignancies, Leukemia, vol. 35, no. 12, p. 3466-3481, 2021. https://doi.org/10.1038/s41375-021-01282-6
[6] T. Wang, Y. Ge, M. Xiao, A. López-Coral, L. Li, A. Roesch, et al. Sectm1 produced by tumor cells attracts human monocytes via cd7-mediated activation of the pi3k pathway, Journal of Investigative Dermatology, vol. 134, no. 4, p. 1108-1118, 2014. https://doi.org/10.1038/jid.2013.437
[7] Z. Yao. Sectm1 promotes the development of glioblastoma and mesenchymal transition by regulating the tgfβ1/smad signaling pathway, International Journal of Biological Sciences, vol. 20, no. 1, p. 78-93, 2024. https://doi.org/10.7150/ijbs.84591
[8] E. Pereira. Transcriptional profiling of sars-cov-2-infected calu-3 cells reveals immune-related signaling pathways, Pathogens, vol. 12, no. 11, p. 1373, 2023. https://doi.org/10.3390/pathogens12111373

Endotoxin	Less than 1.0 EU/ug as determined by LAL method.
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.