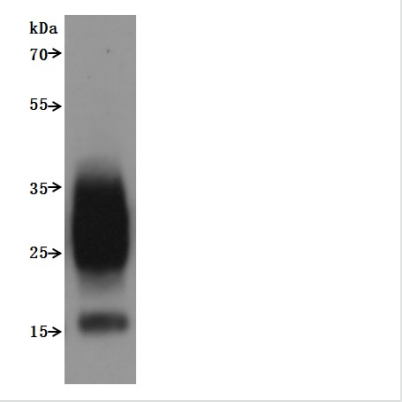
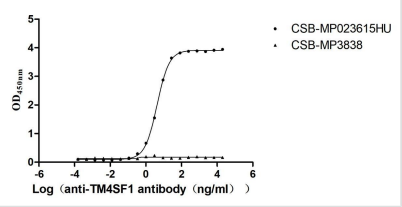
Recombinant Human Transmembrane 4 L6 family member 1(TM4SF1)-VLPs (Active)

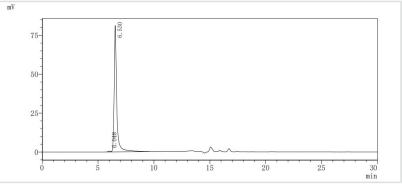
Product Code	CSB-MP023615HU
Abbreviation	Recombinant Human TM4SF1 protein-VLPs (Active)
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P30408
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	Measured by its binding ability in a functional ELISA. Immobilized Human TM4SF1 at 5 μg/mL can bind Anti-TM4SF1 recombinant antibody(CSB-RA023615MA1HU). The EC50 is 4.079-4.472 ng/mL.The VLPs (CSB-MP3838) is negative control.
Purity	Greater than 95% as determined by SEC-HPLC.
Sequence	MCYGKCARCIGHSLVGLALLCIAANILLYFPNGETKYASENHLSRFVWFFSGIV GGGLLMLLPAFVFIGLEQDDCCGCCGHENCGKRCAMLSSVLAALIGIAGSGYC VIVAALGLAEGPLCLDSLGQWNYTFASTEGQYLLDTSTWSECTEPKHIVEWNV SLFSILLALGGIEFILCLIQVINGVLGGICGFCCSHQQQYDC
Source	Mammalian cell
Target Names	TM4SF1
Expression Region	1-202aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	C-terminal 10xHis-tagged (This tag can be tested only under denaturing conditions)
Mol. Weight	23 kDa
Protein Length	Full Length
Image	



CSB-MP023615HU is detected by Mouse anti-6*His monoclonal antibody.The two bands respectively correspond to monomer, Homodimer.



Activity
Measured by its binding ability in a functional ELISA. Immobilized Human TM4SF1 at 5μg/mL can bind Anti-TM4SF1 recombinant antibody(CSB-RA023615MA1HU)? the EC_{50} is 4.079-4.472 ng/mL.VLPs (CSB-MP3838) is negative control.



The purity of VLPs was greater than 95% as determined by SEC-HPLC.

Description

The full-length human TM4SF1 (residues 1-202) is expressed as a virus-like particle (VLP) in mammalian cells with a C-terminal 10×His tag, maintaining native transmembrane topology and multi-pass membrane protein conformation. The recombinant TM4SF1 protein exhibits exceptional purity (>95% by SEC-HPLC) and low endotoxin content (<1.0 EU/μg, LAL method). Its bioactivity has been validated through functional ELISA demonstrating specific antibody binding (EC_{50}: 4.079–4.472 ng/mL at 5 μg/mL immobilization), with VLPs (CSB-MP3838) as negative controls. Mammalian expression ensures proper post-translational modifications critical for TM4SF1's role in cell adhesion, metastasis, and tumor microenvironment regulation. The VLP structure preserves quaternary interactions, enhancing antigen presentation for antibody validation. Lyophilized for stability, this protein facilitates studies of TM4SF1-mediated oncogenic signaling, therapeutic target discovery, and diagnostic assay development in cancer research.

The human TM4SF1 protein, a member of the tetraspanin superfamily, is significantly implicated in various critical cellular processes, particularly in the context of cancer biology. This protein aids in organizing lipid microdomains in the plasma membrane, facilitating interactions with other membrane proteins, including integrins, which are crucial for cell adhesion, migration, and cell signaling [1][2]. TM4SF1 is overexpressed in numerous malignancies, including breast, pancreatic, and lung cancers, suggesting its role as a significant player in cancer progression and metastasis [2][3][4].

Research indicates that TM4SF1 significantly influences tumor behavior through its capacity to modulate cell motility and invasion. For instance, it has been shown to enhance the invasive properties of cancer cells by promoting the formation of nanopodia—cellular protrusions vital for dynamic cellular interactions with their environment [1][5]. Additionally, TM4SF1 is involved in key signaling pathways that govern processes such as cell proliferation and survival, acting as both an oncogene and a potential target for therapeutic intervention [3][6].

TM4SF1's expression is also linked to cellular activities within the tumor microenvironment. In endothelial cells, TM4SF1 regulates functions essential for angiogenesis, such as filopodia formation and cellular migration, which are critical for sustaining tumor growth and metastasis [5][7][8]. Moreover, it is associated with multiple signaling cascades, including those modulated by AKT, which may further enhance the malignant characteristics of tumors [7][4]. The regulation of TM4SF1 by various microRNAs, such as miR-206 and hsa-miR-141, suggests that TM4SF1's activity can be finely tuned post-transcriptionally, adding another layer of complexity to its role in tumor biology [9].

Furthermore, studies have indicated that TM4SF1 is not only a marker of malignancy but may also act as a prognostic factor. Its elevated expression correlates with poor clinical outcomes in various cancers, as seen in pancreatic ductal adenocarcinoma [10]. The ongoing research on TM4SF1 indicates potential applications in targeted cancer therapies, focusing on its ability to mediate drug resistance and its potential as a biomarker for tumor progression and metastasis [6][11].

References:

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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.