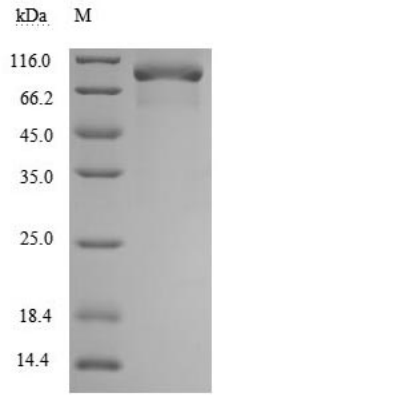
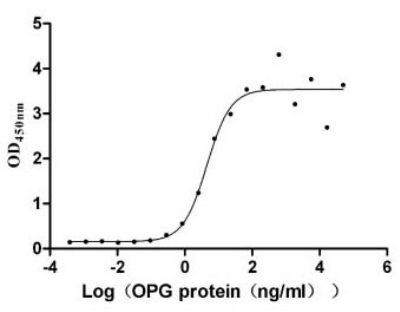
Recombinant Human Tumor necrosis factor receptor superfamily member 11B (TNFRSF11B) (Active)

Product Code	CSB-MP023969HU
Abbreviation	Recombinant Human TNFRSF11B protein (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.	O00300
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 TNFSF11 (CSB-MP023986HU1(F2)) at 10 μg/ml can bind human TNFRSF11B, the EC_{50} is 2.651-7.646 ng/ml.
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	ETFPPKYLHYDEETSHQLLCDKCPPGTYLKQHCTAKWKTVCAPCPDHYYTDS WHTSDECLYCSPVCKELQYVKQECNRTHNRVCECKEGRYLEIEFCLKHRSCP PGFGVVQAGTPERNTVCKRCPDGFFSNETSSKAPCRKHTNCSVFGLLLTQKG NATHDNICSGNSESTQKCGIDVTLCEEAFFRFAVPTKFTPNWLSVLVDNLPGT KVNAESVERIKRQHSSQEQTFQLLKLWKHQNKDQDIVKKIIQDIDLCENSVQRH IGHANLTFEQLRSLMESLPGKKVGAEDIEKTIKACKPSDQILKLLSLWRIKNGDQ DTLKGLMHALKHSKTYHFPKTVTQSLKKTIRFLHSFTMYKLYQKLFLEMIGNQV QSVKISCL
Source	Mammalian cell
Target Names	TNFRSF11B
Expression Region	22-401aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	C-terminal hFc1-Flag-tagged
Mol. Weight	73.5 kDa
Protein Length	Full Length of Mature Protein
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 TNFSF11 (CSB-MP023986HU1(F2)) at 10 μg/ml can bind human TNFRSF11B, the EC_{50} is 2.651-7.646 ng/ml.

Description

The production of the recombinant human TNFRSF11B protein involves expressing a plasmid containing the gene coding for residues 22-401 of TNFRSF11B in mammalian cells. The TNFRSF11B protein is fused with a C-terminal hFc-Flag-tag. SDS-PAGE analysis shows the TNFRSF11B protein has a purity of over 90%, and endotoxin content is confirmed to be below 1.0 EU/μg using the LAL method. ELISA confirms the TNFRSF11B protein's biological activity, with specific binding to the TNFSF11 (CSB-MP023986HU1(F2)). The EC_{50} is 2.651-7.646 ng/mL.

Human TNFRSF11B, also known as osteoprotegerin (OPG), is a crucial glycoprotein important for bone metabolism and the regulation of osteoclastogenesis. It is primarily produced by osteoblasts, although it is also expressed in various tissues, including the heart and blood vessels [1]. OPG functions primarily as a decoy receptor for the RANKL, inhibiting its interaction with RANK on osteoclasts, thereby preventing osteoclast differentiation and activation, which are essential processes in bone resorption [2][3].

Mutations in the TNFRSF11B gene can lead to various bone disorders, including juvenile Paget's disease (JPD), which is characterized by increased bone turnover, deformities, and fractures [4][5]. In JPD, loss-of-function mutations in TNFRSF11B result in the absence of OPG, leading to uncontrolled osteoclast activity and excessive bone resorption [6]. Furthermore, polymorphisms in the TNFRSF11B gene have been associated with susceptibility to osteoporosis and low bone mineral density, highlighting its importance in maintaining bone health [7][8].

Recent studies have also indicated that TNFRSF11B may have implications beyond bone metabolism. Elevated levels of OPG have been linked to

inflammatory conditions and certain cancers, suggesting a potential role in tumor biology and inflammation [9][10]. The co-amplification of TNFRSF11B with oncogenes like MYC has been associated with poor prognosis in gastric cancer, indicating its relevance in cancer progression [9]. Additionally, OPG's ability to inhibit apoptosis may contribute to its role in cancer biology, further complicating its functional profile [10].

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.