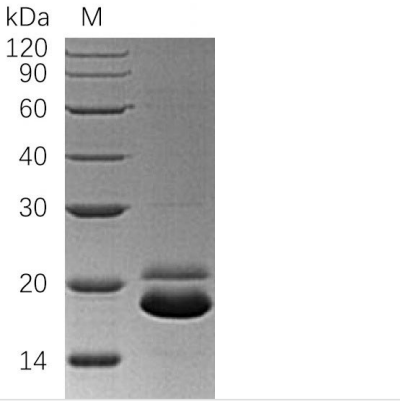
Recombinant Human Tumor necrosis factor receptor superfamily member 10B (TNFRSF10B), partial (Active)

Product Code	CSB-AP004931HU
Abbreviation	Recombinant Human TNFRSF10B protein, partial (Active)
Uniprot No.	O14763
Storage Buffer	Lyophilized from a 0.2 μm filtered 20 mM PB, 150 mM NaCl, pH 7.4
Product Type	Tumor Necrosis Factors
Immunogen Species	Homo sapiens (Human)
Biological Activity	The ED50 as determined by its ability to inhibit TRAIL-mediated cytotoxicity using L-929 mouse fibroblast cells treated with TRAIL is 9.96 ng/ml.
Purity	Greater than 95% as determined by SDS-PAGE.
Sequence	ITQQDLAPQQRAAPQQKRSSPSEGLCPPGHHISEDGRDCISCKYGQDYSTHW NDLLFCLRCTRCDSGEVELSPCTTTRNTVCQCEEGTFREEDSPEMCRKCRTG CPRGMVKVGDCTPWSDIECVHKE
Research Area	Cancer
Source	Mammalian cell
Target Names	TNFRSF10B
Expression Region	56-182aa
Tag Info	C-terminal 6xHis-tagged
Mol. Weight	15.19 kDa
Protein Length	Partial

Image



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

Description

Recombinant Human Tumor necrosis factor receptor superfamily member 10B (TNFRSF10B) is produced in mammalian cells and contains the 56-182 amino

acid region of the protein. This partial protein includes a C-terminal 6xHis-tag, which simplifies purification and detection procedures. The protein achieves greater than 95% purity, as confirmed by SDS-PAGE analysis. Endotoxin levels remain below 1.0 EU/μg, determined through the LAL method. Biological activity appears robust, with an ED50 of 9.96 ng/ml when inhibiting TRAIL-mediated cytotoxicity in L-929 mouse fibroblast cells.

TNFRSF10B belongs to the tumor necrosis factor receptor superfamily and likely plays a key role in mediating apoptosis through its interactions with ligands like TRAIL. The protein seems integral to the extrinsic apoptotic signaling pathway, where it may help regulate cell death and survival mechanisms. This makes it an important target for researchers studying cancer and immune responses. Its function highlights why it has become a significant focus in research aimed at understanding and potentially manipulating apoptotic processes.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. TRAIL-TNFRSF10B Interaction Studies

Researchers can use this recombinant TNFRSF10B protein to investigate binding kinetics and affinity between TRAIL and its receptor in controlled laboratory settings. The biological activity data—specifically its ability to inhibit TRAIL-mediated cytotoxicity with an ED50 of 9.96 ng/ml—suggests the receptor maintains functional capability. Surface plasmon resonance, isothermal titration calorimetry, or fluorescence polarization assays may prove useful for characterizing this protein-ligand interaction. The C-terminal His-tag makes immobilization on appropriate surfaces relatively straightforward for these binding studies.

2. Competitive Inhibition Assays for TRAIL Pathway Research

Given the protein's demonstrated ability to inhibit TRAIL-mediated cytotoxicity, it appears well-suited as a competitive inhibitor in cell-based assays examining TRAIL signaling pathways. Scientists can potentially use this recombinant protein to block TRAIL binding to endogenous receptors across various cell lines. This allows for investigation of TRAIL-dependent cellular responses. The established ED50 value offers a useful reference point for dose-response studies in different experimental systems. This application may be particularly valuable for dissecting TNFRSF10B's role in apoptotic signaling cascades.

3. Antibody Development and Validation

The high purity (>95%) and mammalian expression system likely make this protein suitable for generating and validating antibodies specific to human

TNFRSF10B. The recombinant protein could serve as an immunogen for antibody production or function as a positive control in immunoassays. The C-terminal His-tag provides straightforward purification and immobilization options for ELISA-based antibody screening and characterization. Scientists can use this protein to validate antibody specificity and determine binding affinities across various immunoassay formats.

4. Protein-Protein Interaction Screening

His-tagged TNFRSF10B may prove useful in pull-down assays designed to identify novel binding partners or confirm known interactions within the TRAIL signaling network. The tag allows for immobilization on nickel-based affinity matrices, which can capture interacting proteins from cell lysates or purified protein libraries. The mammalian expression system appears to preserve proper protein folding and post-translational modifications that might be critical for physiologically relevant interactions. This approach could help researchers map out the broader molecular network surrounding TNFRSF10B signaling.

5. Structural and Biophysical Characterization Studies

The recombinant protein's high purity and demonstrated biological activity suggest it may be suitable for structural biology applications, including crystallization trials and NMR spectroscopy studies. Scientists can investigate the three-dimensional structure of the TNFRSF10B extracellular domain (amino acids 56-182) and examine conformational changes that occur upon ligand binding. The low endotoxin level (<1.0 EU/μg) should minimize interference in sensitive biophysical measurements. These studies might provide valuable insights into the molecular basis of TRAIL-receptor recognition and signaling mechanisms.

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