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Product Information

TRAIL, human
recombinant, expressed in *E. coli*

Catalog Number **T9701**
Storage Temperature –20 °C

Synonyms: TNF-Related Apoptosis-Inducing Ligand, TNFSF10, Apo-2 ligand, Apo-2L

Product Description

Recombinant human TRAIL is a 168 amino acid polypeptide (19.6 kDa), consisting of the TNF homologous portion of the extracellular domain of the full length TRAIL/Apo2L protein,[1] expressed in *E. coli*.

TRAIL is a type II transmembrane protein with a carboxy-terminal extracellular domain that exhibits homology to other TNF family members.[2] In the new TNF family nomenclature, TRAIL is referred to as TNFSF10. Human TRAIL is a protein composed of 281 amino acid residues with an amino-terminal intracellular domain of 17 residues and a predicted internal hydrophobic domain between residues 18 and 38. The extracellular carboxy-terminal domain contains the receptor-binding domain and a potential N-linked glycosylation site at amino acid residue 109.

Human TRAIL shares ~65% amino acid sequence homology with mouse TRAIL and is active on mouse cells. Recombinant human TRAIL can be injected into mice without toxic side effects. Both membrane-bound and soluble TRAIL have been shown to induce the rapid apoptosis of many transformed cell lines but not of normal cells.[2,3]

Like most TNF family members, bioactive TRAIL is a non-disulfide-linked homotrimer. Constitutive expression of TRAIL transcripts occurs in a variety of human tissues. TRAIL is a ligand for two death domain-containing receptors, TRAIL-R1 (DR4) and TRAIL-R2 (DR5) that transduce the apoptotic signals. These receptors are members of the TNF receptor family that also includes FAS and TNFR. TRAIL also binds to three decoy receptors that antagonize TRAIL-induced apoptosis.[4,5] An adenovirus protein, RID, has been shown to inhibit TRAIL-induced apoptosis.[6] This apoptosis inducer is thought to be regulated by the transcription factor NF-κB.[7]

The product is lyophilized from 1× Phosphate Buffered Saline.

The biological activity is determined by its ability to induce apoptotic cell death in LN-18 cells.

Purity: ≥98% (SDS-PAGE and HPLC)

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Centrifuge the vial prior to opening. Reconstitute in water to a concentration of 0.5–1.0 mg/ml.

Storage/Stability

The lyophilized protein is stable for up to a few weeks at room temperature, but best stored at –20 °C.

A reconstituted TRAIL solution should be stored at –20 °C in working aliquots. Avoid repeated freeze thaw cycles.

References

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3. Suliman, A. *et al*., Intracellular mechanisms of TRAIL: apoptosis through mitochondrial-dependent and -independent pathways. Oncogene, **20**, 2122-2133 (2001).
4. Golstein, P., Cell death: TRAIL and its receptors. Curr. Biol., **7**, R750–R753 (1997).

5. Chaudhary P.M. *et al*., Death receptor 5, a new member of the TNFR family, and DR4 induce FADD-dependent apoptosis and activate the NF-κB pathway. Immunity, **7**, 821-830 (1997).
6. Tollefson, A.E. *et al*., Inhibition of trail-induced apoptosis and forced internalization of trail receptor 1 by adenovirus proteins. J. Virol., **75**, 8875-8887 (2001).
7. Baetu, T.M. *et al*., Disruption of NF-κB signaling reveals a novel role for NF-κB in the regulation of TNF-related apoptosis-inducing ligand expression. J. Immunol., **167**, 3164-3173 (2001).

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