



Product Information

TRAIL

Human, Recombinant
Expressed in NS0 mouse myeloma cells

Product Number **T 5694**
Storage Temperature - 20 °C

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

Product Description

The extracellular domain of human TRAIL (Thr⁹⁵-
Gly²⁸¹)¹ having a histidine tag at the amino terminus
was expressed in a mouse myeloma cell line, NS0.

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 about 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- κ B.⁷

Reagent

Recombinant human TRAIL is lyophilized from a
0.2 μ m-filtered solution in phosphate-buffered saline
containing 50 μ g bovine serum albumin per 1 μ g
TRAIL.

Precautions and Disclaimer

For laboratory use only. Not for drug, household or
other uses. Please consult the Material Safety Data
Sheet for handling recommendations before working
with this material.

Storage/Stability

Lyophilized recombinant human TRAIL is stable for at
least 6 months at -20 °C. A stock solution containing at
least 20 μ g protein per ml can be stored under sterile
conditions at 2-8 °C for one month and in single-use
aliquots for six months at -70 °C without detectable
loss of activity. Avoid repeated freeze-thaw cycles.

Product Profile

Recombinant human TRAIL may contain up to 10%
disulfide-linked homodimers. The monomeric
extracellular domain of recombinant human TRAIL has
a predicted molecular mass of approximately 21 kDa
but migrates as a 24 kDa protein in SDS-PAGE under
reducing conditions, perhaps due to glycosylation.

The activity of recombinant human TRAIL is determined
by the induction of cytotoxicity in mouse L-929 cells in
the presence of the metabolic inhibitor actinomycin D.⁸
The ED₅₀ for this effect is in the range of 4–12 ng/ml.

The purity of recombinant human TRAIL is >97%
determined by SDS-PAGE with silver staining

References

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of a new member of the TNF family that induces
apoptosis. *Immunity* **3**, 673-682 (1995).

2. Pitti, R.M. *et al.*, Induction of apoptosis by Apo-2 ligand, a new member of the tumor necrosis factor cytokine family. *J. Biol. Chem.*, 271, 12687-12690 (1996).
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- κ B pathway. *Immunity* **7**:821-830 (1997).
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7. Baetu, T.M., *et al.*, Disruption of NF- κ B signaling reveals a novel role for NF- κ B in the regulation of TNF-related apoptosis-inducing ligand expression. *J. Immunol.*, **167**, 3164-3173 (2001).
8. Matthews, N., *et al.* in *Lymphokines and Interferons: A Practical Approach*, M.J. Clemens, *et al.*, eds., IRL Press, p.221 (1987).

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