

## TWEAK/TNFSF12 Protein, Mouse (HEK293, rFc)

<b>Cat. No.:</b>	HY-P77265
<b>Synonyms:</b>	Tumor necrosis factor ligand superfamily member 12; TWEAK; APO3L; DR3LG
<b>Species:</b>	Mouse
<b>Source:</b>	HEK293
<b>Accession:</b>	NP_035744.1 (R105-H249)
<b>Gene ID:</b>	21944
<b>Molecular Weight:</b>	Approximately 43.5 kDa.

### PROPERTIES

<b>AA Sequence</b>	<pre> R A I A A H Y E V H   P R P G Q D G A Q A   G V D G T V S G W E   E T K I N S S S P L R Y D R Q I G E F T   V I R A G L Y Y L Y   C Q V H F D E G K A   V Y L K L D L L V N G V L A L R C L E E   F S A T A A S S P G   P Q L R L C Q V S G   L L P L R P G S S L R I R T L P W A H L   K A A P F L T Y F G   L F Q V H           </pre>
<b>Biological Activity</b>	Measured in a cell proliferation assay using HUVEC cells. The ED <sub>50</sub> for this effect is 36.42 ng/mL, corresponding to a specific activity is 2.746×10 <sup>4</sup> U/mg.
<b>Appearance</b>	Lyophilized powder
<b>Formulation</b>	Lyophilized from a 0.2 μm filtered solution of PB, 150 mM NaCl, pH 7.4.
<b>Endotoxin Level</b>	<1 EU/μg, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH <sub>2</sub> O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
<b>Storage &amp; Stability</b>	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

<b>Background</b>	TWEAK Protein refers to the cytokine tumor necrosis factor-like weak inducer of apoptosis. It is a multifunctional cytokine belonging to tumor necrosis factor (TNF) superfamily, acts function by binding TweakR/Fn14 receptor. TWEAK is a cell surface-associated type II transmembrane protein with 2 types protein chain: the membrane form and the secreted or soluble form. The soluble form derives from the membrane form by proteolytic processing. The protein sequences in human and mouse is very different with similarity of 24.79% <sup>[1]</sup> .
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TWEAK binds to FN14 and possibly also to TNFRSF12/APO3, is a weak inducer of apoptosis in some cell types. TWEAK mediates NF-kappa-B activation, promotes angiogenesis and the proliferation of endothelial cells<sup>[2]</sup>. TWEAK has multiple biological activities, many of which are associated with immune system development and function<sup>[1]</sup>. TWEAK does have pro-apoptotic activity on a select group of human tumor cell lines and on monocytes, while it promotes cell proliferation in human vascular EC and SMC. Furthermore, FGF-2 co-treatment can potentiate TWEAK-stimulated HUVEC proliferation, an effect that may be due to the ability of FGF-2 to up-regulate TweakR/Fn14 gene expression. At the meanwhile TWEAK-TweakR/Fn14 autocrine signaling promotes human microvascular renal EC (HMREC) migration<sup>[1]</sup>. TWEAK also plays key role in inflammatory response. TWEAK, stimulates interleukin (IL)-8 secretion in human tumor cell lines, WI-38 fibroblasts and astrocytes. TWEAK also increases IL-6 secretion and ICAM-1 expression in astrocyte cell. Moreover, TWEAK co-incubation could potentiate the pro-inflammatory activities of TNF and IL-1, and concluded that TWEAK could be involved in the pathogenesis of chronic inflammatory diseases<sup>[3]</sup>. Above all, TWEAK involves in stimulation of cell growth and angiogenesis, induction of inflammatory cytokines, and under some experimental conditions, stimulation of apoptosis<sup>[1]</sup>.

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## REFERENCES

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- [1]. Wiley SR, et al. TWEAK, a member of the TNF superfamily, is a multifunctional cytokine that binds the TweakR/Fn14 receptor. *Cytokine Growth Factor Rev.* 2003 Jun-Aug;14(3-4):241-9.
- [2]. Lammens A, et al. Crystal structure of human TWEAK in complex with the Fab fragment of a neutralizing antibody reveals insights into receptor binding. *PLoS One.* 2013 May 8;8(5):e62697.
- [3]. Lynch CN, et al. TWEAK induces angiogenesis and proliferation of endothelial cells. *J Biol Chem.* 1999 Mar 26;274(13):8455-9.
- [4]. Moreno JA, et al. The inflammatory cytokines TWEAK and TNF $\alpha$  reduce renal klotho expression through NF $\kappa$ B. *J Am Soc Nephrol.* 2011 Jul;22(7):1315-25.
- [5]. Harada N, et al. Pro-inflammatory effect of TWEAK/Fn14 interaction on human umbilical vein endothelial cells. *Biochem Biophys Res Commun.* 2002 Dec 6;299(3):488-93.
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