Datasheet

Cat. No. PM2029

Recombinant Mouse TPO, Tag Free

Information

Accession #	P40226
Alternate Names	THCYT1; THPO; thrombopoietin nirs variant 1; Thrombopoietin; Tpo; TPOMKCSF; MKCSF; MK-CSF
Source	Human embryonic kidney cell, HEK293-derived mouse TPO protein
Protein sequence	Ser22-Thr356
M.Wt	35.6 kDa
Appearance	Solution protein
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. - 12 months from date of receipt, -20 to -70°C as supplied.
Concentration	0. 2 mg/mL
Formulation	Dissolved in sterile PBS buffer.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. This solution can be diluted into other aqueous buffers.
Biological Activity	The EC50 for this effect is 0.04-2.4 ng/mL. Measured in a cell proliferation assay using MO7e human megakaryocytic leukemic cells.
Shipping Condition	Shipping with dry ice.
Handling	Centrifuge the vial prior to opening.
Usage	For Research Use Only! Not to be used in humans.

Quality Control

Purity	> 95%, determined by SDS-PAGE.
Endotoxin	<0.010 EU per 1 ug of the protein by the LAL method.

Description

Thrombopoietin (Tpo), is a key regulator of megakaryocytopoiesis and thrombopoiesis. It is principally produced in the liver and is bound and internalized by the receptor Tpo R/c-mpl. Defects in the Tpo-Tpo R signaling pathway are associated with a variety of platelet disorders [1-3]. The 356 amino acid (aa) mouse Tpo precursor is cleaved to yield the 335 aa mature protein. Mature mouse Tpo shares 71% and 81% aa sequence homology with human and rat Tpo, respectively. It is an 80-85 kDa protein that consists of an N-terminal domain with homology to Erythropoietin (Epo) and a C-terminal domain that contains multiple N-linked and O-linked glycosylation sites [4, 5]. Tissue specific alternate splicing of mouse Tpo generates multiple isoforms with internal deletions, insertions, and/or C-terminal substitutions [6]. Tpo promotes the differentiation, proliferation, and maturation of MK and their progenitors [4, 5, 7].

Several other cytokines can promote these functions as well but only in cooperation with Tpo [8, 9]. Notably, IL-3 independently induces MK development, although its effects are restricted to early in the MK lineage [8, 9]. Tpo additionally promotes platelet production, aggregation, ECM adhesion, and activation [10-12]. It is cleaved by platelet-derived thrombin following Arg191 within the C-terminal domain and subsequently at other sites upon extended digestion . Full length Tpo and shorter forms circulate in the plasma [4, 5]. The C-terminal domain is not required for binding to Tpo R or inducing MK growth and differentiation [5]. Aside from its hematopoietic effects, Tpo is expressed in the brain where it promotes the apoptosis of hypoxia-sensitized neurons and inhibits neuronal differentiation by blocking NGF-induced signaling .

Reference

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[7]. Kaushansky, K. et al. (1994) Nature 369:568.

[8]. Kaushansky, K. et al. (1995) Proc. Natl. Acad. Sci. 92:3234

[9]. Broudy, V.C. et al. (1995) Blood 85:1719.

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