Datasheet

Cat. No. PH2022

Recombinant Human Thrombopoietin/TPO

Information

Accession #	P40225
Alternate Names	Megakaryocyte colony-stimulating factor; MGDFC-mpl ligand; MKCSF; THPO; Thrombopoietin; Tpo
Source	Human embryonic kidney cell, HEK293-derived human Thrombopoietin/Tpo protein
Protein sequence	Ser22-Gly353
M.Wt	52.9 kDa
Appearance	Solution protein.
Stability & Storage	Avoid repeated freeze-thaw cycles. It is recommended that the protein be aliquoted for optimal storage. 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	Measured in a cell proliferation assay using MO7e human megakaryocytic leukemic cells. The EC50 for this effect is 0.3-2 ng/mL.
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 353 amino acid (aa) human Tpo precursor is cleaved to yield the 332 aa mature protein. Mature human Tpo shares approximately 70% aa sequence homology with mouse and rat Tpo. 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 human 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, 13]. It is cleaved by platelet-derived thrombin following Arg191 within the C-terminal domain and subsequently at other sites upon extended digestion [14]. 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].

Reference

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[13]. Van Os, E. et al. (2003) Br. J. Haematol. 121:482.

[14]. Kato, T. et al. (1997) Proc. Natl. Acad. Sci. 94:4669.