GMP Recombinant Human TPO (carrier-free)

Catalog# / Size	763714 / 25 µg 763716 / 100 µg
Other Names	Megakaryocyte Colony Stimulating Factor (MKCSF), Myeloproliferative leukemia virus oncogene ligand (Mpl-ligand), Megakaryocyte growth and development factor (MGDF), THPO, Thrombopoietin, MPLLG, MGDF, ML
Description	Thrombopoietin (TPO) is a key regulator of megakaryocytopoiesis and thrombopoiesis. TPO binds to its receptor, the cellular homologue of the myeloproliferative leukemia virus oncogene (c-Mpl), and stimulates the proliferation and maturation of megakaryocytes. MPL does not possess kinase activity, thus the receptor associates with intracytoplasmic tyrosine kinases, janus kinase 2 (JAK2), for signal transduction. JAK2 is also important for MPL stability and cell-surface expression. TPO is able to promote the survival, self-renewal, and expansion of hematopoietic stem cells and primitive multi-lineage progenitor cells. TPO levels in blood and bone marrow are inversely related to platelet count. The regulation of TPO levels is mediated by its receptor c-Mpl (uptake and destruction). TPO is upregulated by PDGF and FGF-2, and it is downregulated by PF4, thrombospondin, and TGF-β in bone marrow stromal cells. In hepatocytes, HGF enhances TPO mRNA expression. During acute-phase response, IL-6 induces TPO transcription in the liver. Elevated plasma TPO levels exist in several hematological diseases associated with thrombocytopenia, coronary syndromes, and sepsis. Besides its hematopoietic effects, TPO is expressed in the brain where it promotes apoptosis of hypoxia sensitized neurons and inhibits neuronal differentiation by blocking NGF-induced signaling. Increased TPO concentrations are present in the cerebrospinal fluid of some patients with bacterial or viral meningitis.

Product Details

Source	Human TPO, amino acids Ser22-Gly353 (Accession # NM_000460), was expressed in 293E cells. The C-terminal contains an 8His-(TG8HGGQ)-tag.
Molecular Mass	The 345 amino acid recombinant protein has a predicted molecular mass of approximately 37 kD. The DTT-reduced and non-reduced proteins migrate at approximately 70 kDa by SDS-PAGE. The predicted N-terminal amino acid is Ser.
Purity	> 95%, as determined by Coomassie stained SDS-PAGE
Formulation	0.1 µm filtered protein solution is in PBS, pH 7.2.
Endotoxin Level	Less than 0.1 EU per µg protein as determined by the LAL method
Concentration	500 µg/mL
Storage & Handling	Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 µg/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% endotoxin-free BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week or stored at -20°C or colder for up to 3 months. **Avoid repeated freeze/thaw cycles.**
Activity	ED_{50} = 0.15 - 0.6 ng/mL as measured by its ability to induce dose-dependent proliferation of MO7e megakaryocytic leukemia cells. Deep Blue Cell Viability™ Kit (Cat. No. 424701) is used to measure the proliferation.
Application	Bioassay Cell Culture
Application Notes	BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are validated in-house to maintain activity after shipping on blue ice and are backed by our 100% satisfaction guarantee. If you have any concerns, contact us at tech@biolegend.com.
Disclaimer	**GMP Recombinant Proteins.** BioLegend GMP recombinant proteins are

manufactured in a dedicated GMP facility and compliant with ISO 13485:2016. For research or *ex vivo* cell processing use. Not for use in diagnostic or therapeutic procedures. Our processes include:

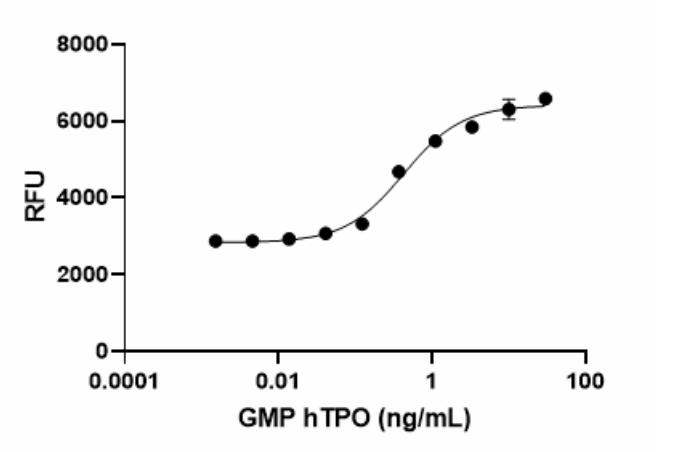
- Batch-to-batch consistency
- Material traceability
- Documented procedures
- Documented employee training
- Equipment maintenance and monitoring records
- Lot-specific certificates of analysis
- Quality audits per ISO 13485:2016
- QA review of released products

BioLegend GMP recombinant protiens are manufactured and tested in accordance with USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and Ph. Eur. Chapter 5.2.12.

Antigen Details

Structure	Growth Factor
Distribution	TPO is produced by the liver and kidney and is expressed in the central nervous system and bone marrow.
Function	TPO regulates the megakaryocytopoiesis and thrombopoiesis
Interaction	Megakaryocytes, platelets, hemangioblasts, hematopoietic stem cells, and endothelial cells
Ligand/Receptor	c-Mpl
Bioactivity	Measured by its ability to induce proliferation of MO7e megakaryocytic leukemia cells.
Cell Type	Embryonic Stem Cells, Hematopoietic stem and progenitors, Mesenchymal Stem Cells
Biology Area	Apoptosis/Tumor Suppressors/Cell Death, Cell Biology, Stem Cells
Molecular Family	Cytokines/Chemokines, Growth Factors
Antigen References	1. Avanzi G, et al. 1988. Br J Haematol. 69:359. 2. Deutsch V.R. and Tomer A. 2006. Br J Haematol. 134:453. 3. Drachman JG, et al. 1995. J Biol Chem. 270:4979. 4. Li J. et al. 1999. Br J Haematol. 106:345. 5. Kato T, et al. 1997. Proc Natl Acad Sci. 94:4669. 6. Ehrenreich H, et al. 2005. Proc Natl Acad Sci USA. 102:862. 7. Royer Y, et al. 2005. J Biol Chem. 280:27251. 8. Kaushansky K. 2005. J Clin Invest. 115:3339. 9. de Graaf CA and Metcalf D. 2011. Cell Cycle. 10:1582. 10. Zhang J, et al. 2010. J Interferon Cytokine Res. 7:465. 11. Lupia E, et al. 2012. Mediators Inflamm. 2012:390892. 12. Besancenot R, et al. 2014. Blood. 124:2104.
Gene ID	7066

Product Data



GMP recombinant human TPO induce dose-dependent proliferation of MO7e megakaryocytic leukemia cells. Deep Blue Cell Viability™ Kit (Cat. No. 424701) is used to measure the proliferation. The ED_{50} range for this effect is 0.15 – 0.6 ng/mL.

Symbols Glossary*

Symbol	Meaning	Symbol Title	Symbol No.	Symbol	Meaning	Symbol Title	Symbol No.
REF	Catalog number	Catalogue number	5.1.6		Indicates the need for the user to consult the instructions for use.	Consult instructions for use	5.4.3
	Indicates the temperature limits to which the medical device can be safely exposed.	Temperature limit	5.3.7		Indicates a medical device that needs protection from light sources.	Keep away from sunlight	5.3.2
	Indicates the upper limit of temperature to which the medical device can be safely exposed.	Upper limit of temperature	5.3.6		Indicates the date after which the medical device is not to be used.	Use-by date	5.1.4
	Indicates the medical device manufacturer.	Manufacturer	5.1.1	EC REP	Indicates the authorized representative in the European Community.	Authorized representative in the European Community	5.1.2
LOT	Indicates the manufacturer's batch code so that the batch or lot can be identified.	Batch code	5.1.5	IVD	Indicates a medical device that is intended to be used as an in vitro diagnostic medical device.	*In vitro* diagnostic medical device	5.5.1

* Symbol information is from EN ISO 15223-1:2016 Medical devices – Symbols to be used with medical device labels, labelling and information to be supplied – Part 1: General requirements

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