

## Recombinant Human TPO ACF

Catalog #	Product	Size
95110	Recombinant Human TPO ACF	10 µg

### Intended Use

Recombinant Human TPO ACF is a carrier-free, animal component-free bioactive recombinant cytokine intended for use in cell culture applications. Thrombopoietin (TPO) is a protein that is produced by liver and kidney tissue. TPO acts through the TPO receptor to promote megakaryocyte growth, maturation and differentiation, which leads to the production of platelets (1).

### Product Description

#### 1. Synonyms

Megakaryocyte Colony Stimulating Factor, c-MPL ligand, MGDF

#### 2. Accession Number

P40225

#### 3. Background

TPO is a 68-85kD glycoprotein that significantly expands bone marrow and splenic megakaryocytes and their CD34+ precursors, resulting in increased platelet production. TPO supports early megakaryocyte-progenitor colony formation and induces expression of megakaryocyte differentiation markers, polyploidization, and maturation into platelets. Encoded by the proto-oncogene c-Mpl, the TPO receptor c-Mpl lacks intrinsic kinase domains but TPO binding characteristically induces tyrosine phosphorylation of multiple intracellular proteins. The Janus family of non-receptor protein tyrosine kinases (JAKs) is the key mediator of TPO receptor signaling. The N-terminal first 153 amino acids of TPO contains the entire receptor-binding region, while its C-terminal domain has multi-N-linked glycosylation sites and functions to promote TPO secretion and prolong its circulatory survival. TPO affects the entire thrombopoietic process and has stronger effects in the later stages. Other thrombopoietic cytokines include stem cell factor (SCF), IL-3, IL-6, and IL-11. There is great therapeutic potential for TPO for the treatment of many clinical conditions that result in thrombocytopenia. Human, mouse and dog TPO show 69-75% amino acid homology. Recombinant Human TPO is a non-glycosylated protein, containing the 174 amino acids of the receptor binding domain, with a molecular weight of 18.6 kDa (2-5).

#### 4. Specifications

##### **Formulation**

Recombinant Human TPO is lyophilized from 10 mM Na<sub>2</sub>PO<sub>4</sub>, pH 8.0.

##### **Protein Content and Purity**

≥ 95% determined by reducing and non-reducing SDS-PAGE.

##### **Bioactivity**

ED50 is determined by dose-dependent proliferation of MO7e cells. The ED50 is typically less than 2 ng/mL.

### **Quality and Grade**

Carrier-free. Animal component-free.

## Quality Assurance

All quality control test results are reported on a lot specific Certificate of Analysis which is available upon request.

## Shipping

This product is shipped at ambient temperature. Immediately upon receipt, store at the recommended temperature below.

## Storage Instructions and Stability

Upon receipt, store the lyophilized protein at  $-10^{\circ}\text{C}$  in a manual defrost freezer for up to 12 months from the date of receipt. Unopened vials are stable for one year from the date of receipt when stored as recommended. Reconstituted material should be apportioned in working volumes and stored at or below  $-10^{\circ}\text{C}$  in manual defrost freezer. Reconstituted material is stable for 4-6 weeks when stored at or below  $-10^{\circ}\text{C}$  and for 3-12 months at  $-80^{\circ}\text{C}$ . Stability can be increased by adding at least 0.1% carrier protein.

## Precautions

This product is for research or further manufacturing use only. It is not for use in diagnostic procedures. The safety and efficacy of this product in diagnostic or other clinical procedures has not been established.

## Directions for Use

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### **1. Reconstitution**

Centrifuge vial before opening. When reconstituting the product, gently pipet and wash down the sides of the vial to ensure full recovery of the protein into solution. It is recommended to reconstitute the lyophilized product with sterile water at a concentration of 0.1 mg/mL, which can be further diluted into other aqueous solutions.

### **2. Optimum Concentration**

The optimum concentration varies depending on cell type and culture conditions. Working concentration should be determined for each specific application.

## References

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1. de Sauvage FJ, Hass PE, Spencer SD, Malloy BE, Gurney AL, Spencer SA, Darbonne WC, Henzel WJ, Wong SC, Kuang WJ, et al. (1994). Stimulation of megakaryocytopoiesis and thrombopoiesis by the c-mpl ligand. *Nature* 369(6481): 533-538.
2. Kaushansky K, Lok S, Holly RD, Broudy VC, Lin N, Bailey MC, Forstrom JW, Buddle MM, Oort PJ, Hagen FS, et al. (1994). Promotion of megakaryocyte progenitor expansion and differentiation by the c-mpl ligand thrombopoietin. *Nature* 369(6481): 568-571.

3. Miyajima A, Kitamura T, Harada N, Yokota T, Arai K. (1992). Cytokine receptors and signal transduction. *Annu. Rev. Immunol.* 10: 295-331.
4. Vigon I, Mornon JP, Cocault L, Mitjavila MT, Tambourin P, Gisselbrecht S, Souyri M. (1992). Molecular cloning and characterization of MPL, the human homolog of the v-mpl oncogene: Identification of a member of the hematopoietic growth factor receptor superfamily. *Proc. Natl. Acad. Sci.* 89(12): 5640-5644.
5. Page LA, Thorpe R, Mire-Sluis AR. (1996). A sensitive human cell line based bioassay for megakaryocyte growth and development factor or thrombopoietin. *Cytokine* 8(1): 66-69.

## Technical Support

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### CONTACT US

For more information or assistance contact Customer Service at:

- Email: [fisimrequest@fujifilm.com](mailto:fisimrequest@fujifilm.com)
- Direct line: +1 800 577 6097

### WEBSITE RESOURCES

Visit the website at [www.irvinesci.com](http://www.irvinesci.com) for technical resources and information including:

- Safety Data Sheets (SDS)
- Certificate of Analysis (CoA) (when available)
- FAQs
- Product literature
- Complete list of offices and contact information by country

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