

# Cytokines

## Human Recombinant EPO



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### Erythropoietin

Catalog #	78007.1	10 µg
	78007	50 µg
	78007.2	1000 µg

## Product Description

Erythropoietin (EPO) is a glycoprotein growth factor that is produced primarily in the kidney in response to hypoxia or anemia. It is the principal physiological regulator of erythropoiesis. EPO promotes erythropoiesis by binding to a homodimeric cell surface receptor that activates JAK2/STAT5, PI3K/AKT, and MAPK pathways, and stimulates the proliferation and differentiation of erythroid progenitor cells (Jelkmann; Kuhrt & Wojchowski). EPO has also been reported to have a role in cardiac and brain development, and in protecting heart and brain tissue against inflammatory and ischemic damage. It is thought that these cytoprotective activities are either exerted directly on cardiomyocytes and neural cells, or indirectly by stimulation of endothelial progenitor cells and neovascularization in these tissues. However, the nonhematopoietic activities of EPO have not been as clearly demonstrated as the role of EPO in erythropoiesis and its clinical utility in alleviating anemia in patients with chronic kidney disease and other disorders that affect red blood cell production (Jelkmann).

## Product Information

**Alternative Names:** Epoetin, Erythropoietin, EP

**Accession Number:** Amino P01588

**Acid Sequence:** APPRLICDSR VLERYLLEAK EAENITTGCA EHCSLNENIT VPDTKVNIFYA WKRMEVGQQA VEVWQGLALL  
SEAVLRGQAL LVNSSQPWEP LQLHVDKAVS GLRSLTLLR ALGAQKEAIS PPDAASAAPL RTITADTRFK  
LFRVYSNFLR GKLKLYTGEA CRTGDR

**Predicted Molecular Mass:** 18.4 kDa

**Species:** Human

**Cross Reactivity:** Mouse, Rat

**Formulation:** Lyophilized after dialysis against phosphate-buffered saline (PBS).

**Source:** CHO

## Specifications

**Activity:** The EC50 is  $\leq 0.6$  ng/mL as determined by a cell proliferation assay using TF-1 cells. The specific activity is  $\geq 220$  IU/µg as determined by titration in a CFU assay on human bone marrow MNCs and calibration against the third international reference preparation of EPO (NIBSC code: 11/170).

**Purity:**  $\geq 95\%$

**Endotoxin Level:** Measured by kinetic Limulus amoebocyte lysate (LAL) analysis and is  $\leq 0.2$  EU/µg protein.

Abbreviations: CFU: Colony-forming unit; EC50: Effective concentration at which the cell proliferation is at 50% of maximum; MNCs: Mononuclear cells

## Preparation and Storage

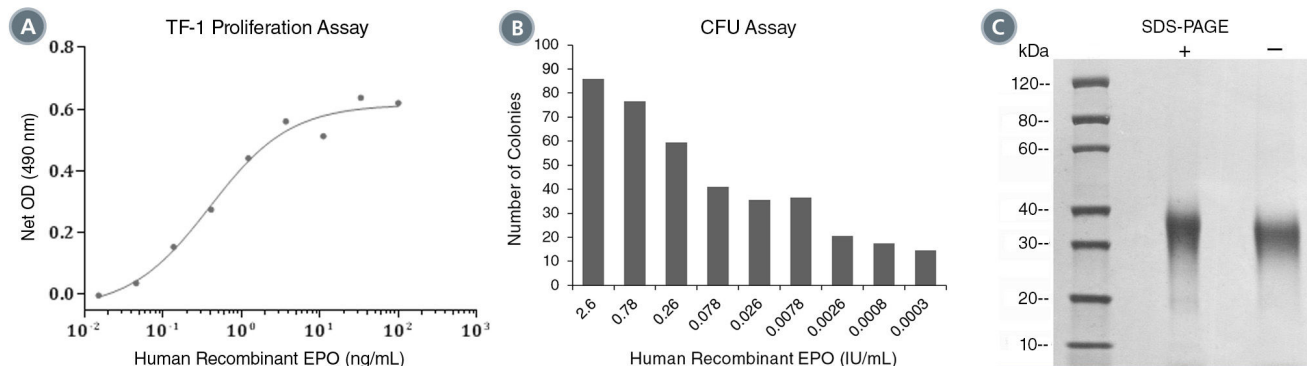
**Storage:** Store at  $-80^{\circ}\text{C}$ .

**Stability:** Stable as supplied for 12 months from date of receipt.

**Preparation:** Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.

OPTIONAL: After reconstitution, dilute in an appropriate buffer, e.g. D-PBS (Without  $\text{Ca}^{++}$  and  $\text{Mg}^{++}$ ) (Catalog #37350) with 0.1% (w/v) bovine serum albumin (BSA), diluted from a 10% stock solution (10% BSA in Iscove's MDM, Catalog #09300) or D-PBS with 2% Fetal Bovine Serum (Catalog #07905). The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at  $2 - 8^{\circ}\text{C}$  for more than 1 week or at  $-20^{\circ}\text{C}$  for more than 2 months. Avoid repeated freeze-thaw cycles.

## Data



(A) The biological activity of Human Recombinant EPO was tested by its ability to promote the proliferation of TF-1 cells. Cell proliferation was measured using a fluorometric assay method. The EC<sub>50</sub> is defined as the effective concentration of the growth factor at which the cell proliferation is at 50% of maximum. The EC<sub>50</sub> in the above example is less than 0.6 ng/mL.

(B) Human Recombinant EPO stimulates the proliferation and differentiation of erythroid progenitor cells, and was validated by titration in a CFU assay on human bone marrow MNCs using MethoCult™ SF H4236 (Catalog #04236). The colonies at each EPO concentration were counted using STEMvision™ (Catalog #22006).

(C) 5 µg of Human Recombinant EPO was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant EPO polypeptide has a predicted molecular mass of 18.4 kDa. As a result of glycosylation, the recombinant protein migrates with an apparent molecular mass of 26 - 36 kDa in SDS-PAGE.

## Related Products

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## References

- Jelkmann W. (2013) Physiology and pharmacology of erythropoietin. *Transfus Med Hemother* 40(5): 302–9.
- Kuhr D & Wojchowski DM. (2015) Emerging EPO and EPO receptor regulators and signal transducers. *Blood* 125(23): 3536–41.

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