

### General Information

Synonyms	ECYT5; EP; EPO; epoetin; Erythropoietin; MGC138142; MVCD2
Accession #	CAA26094
Source	Human embryonic kidney cell, HEK293-derived human Erythropoietin/EPO protein
	Ala28-Arg193
Predicted Molecular weight	21 kDa

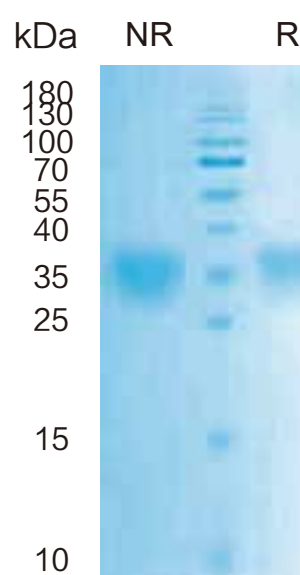
### Components and Storage

Formulation	Solution protein. Dissolved in sterile PBS buffer to a concentration of 0.2 mg/mL. This solution can be diluted into other aqueous buffers. Centrifuge the vial prior to opening.
Storage and Stability	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.
Shipping	Shipping with dry ice.

### Quality

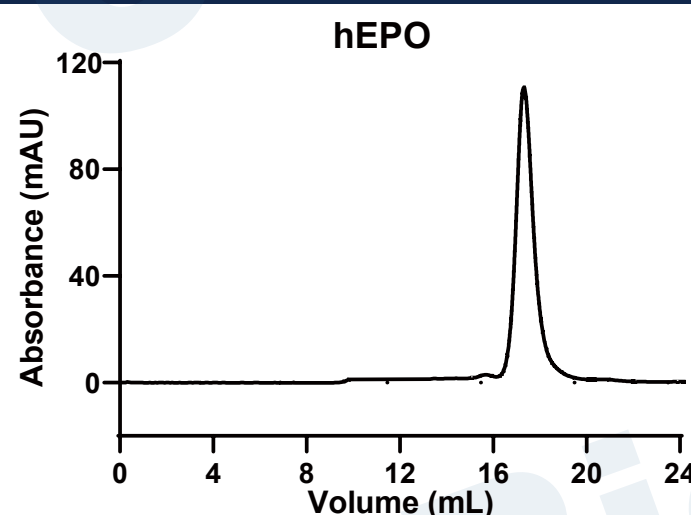
Purity	> 95%, determined by SDS-PAGE.
Endotoxin Level	<0.010 EU per 1 ug of the protein by the LAL method.
Activity	Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. The EC50 for this effect is 50-200 ng/mL.

### SDS-PAGE



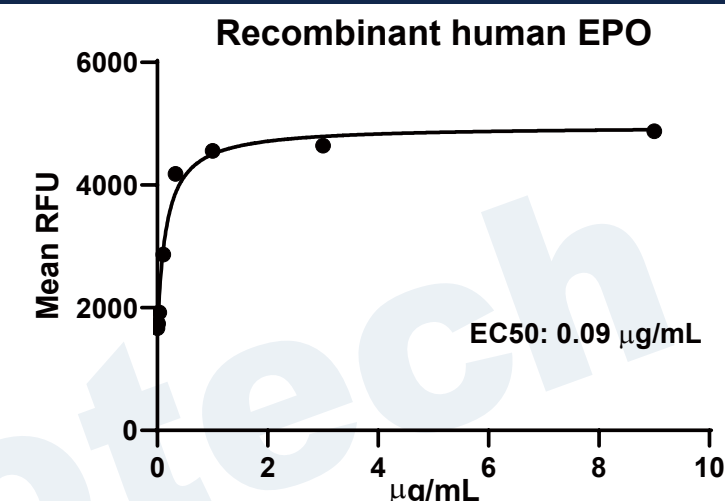
4 ug/lane protein was resolved with SDS-PAGE under non-reducing (NR) and reducing (R) conditions and visualized by Coomassie Blue staining.

### Gel filtration



Size-exclusion chromatography of recombinant human Erythropoietin/EPO protein (280 nm absorbance)

### Bioactivity



Recombinant human Erythropoietin/EPO (Catalog # HF-2006) stimulates cell proliferation of the TF-1 human erythroleukemic cells.

### Background

Erythropoietin (EPO) is a 34 kDa glycoprotein hormone in the type I cytokine family and is related to thrombopoietin (1). Its three N-glycosylation sites, four alpha helices, and N- to C-terminal disulfide bond are conserved across species (2, 3). Glycosylation of the EPO protein is required for biological activities in vivo (4). The mature human EPO protein shares 75% - 84% amino acid sequence identity with bovine, canine, equine, feline, mouse, ovine, porcine, and rat EPO. EPO is primarily produced in the kidney by a population of fibroblast-like cortical interstitial cells adjacent to the proximal tubules (5). It is also produced in much lower, but functionally significant amounts by fetal hepatocytes and in adult liver and brain (6-8). EPO promotes erythrocyte formation by preventing the apoptosis of early erythroid precursors which express the erythropoietin receptor (EPO R) (8, 9). EPO R has also been described in brain, retina, heart, skeletal muscle, kidney, endothelial cells, and a variety of tumor cells (7, 8, 10, 11). Ligand induced dimerization of EPO R triggers JAK2-mediated signaling pathways followed by receptor/ligand endocytosis and degradation (1, 12). Rapid regulation of circulating EPO allows tight control of erythrocyte production and hemoglobin concentrations. Anemia or other causes of low tissue oxygen tension induce erythropoietin production by stabilizing the hypoxia-inducible transcription factors HIF-1 alpha and HIF-2 alpha (1, 6). EPO additionally plays a tissue-protective role in ischemia by blocking apoptosis and inducing angiogenesis (7, 8, 13).

### Reference

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