Datasheet

Cat. No. PH2026

Recombinant Human Erythropoietin/EPO

Information

Accession #	CAA26094
Alternate Names	ECYT5; EP; EPO; epoetin; Erythropoietin; MGC138142; MVCD2
Source	Human embryonic kidney cell, HEK293-derived human Erythropoietin/EPO protein
Protein sequence	Ala28-Arg193
M.Wt	21 kDa
Appearance	Solution protein.
Stability & Storage	Avoid repeated freeze-thaw cycles. It is recommended that the protein be aliquoted for optimal storage. 3 years 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 TF-1 human erythroleukemic cells. The EC50 for this effect is 50-200 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

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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