

Recombinant Human Erythropoietin/EPO (His, Flag)

Information

Gene ID	2056
Accession #	P01588
Alternate Names	ECYT5; EP; EPO; epoetin; Erythropoietin; MGC138142; MVCD2
Source	HEK293
Protein sequence	MGVHECPAWLWLLLSLLSLPLGLPVLGAPPRLICDSRVLERYLLEAKEAENITGCAEHCSLNENITVPDT KVNIFYAWKRMEVGGQAVEVWQGLALLSEAVLRGQALLVNSSQPWEPLQLHVDKAVSGLRSLTLLRAL GAQKEAISPPDAASAAPLRTITADTFRKLFVYSNFLRGKLGKLYTGEACRTGDR
Tag	C-His & C-Flag
M.Wt	The protein has a calculated MW of 24.2 KDa.
Appearance	Solution protein
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles - 36 months from date of receipt, -20 to -70°C as supplied
Concentration	1 mg/mL
Formulation	Supplied as a 0.2 µm filtered solution in PBS, pH7.4.
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	Fully biologically active as determined by a cell proliferation assay using BaF3 mouse pro-B cells transfected with mouse EPO R. The EC50 for this effect is 2.1 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 % by SDS-PAGE.
Endotoxin	Less than 1.0 EU/µg as determined by LAL method.

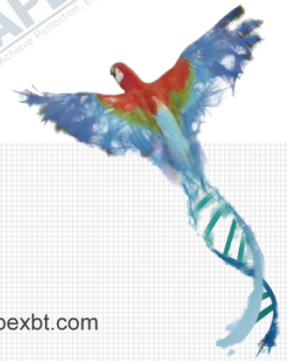
Description

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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