

PRODUCT INFORMATION



Erythropoietin (human, recombinant)

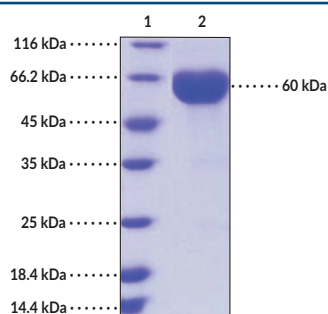
Item No. 32092

Overview and Properties

Synonyms:	EPO, Epoetin
Source:	Active recombinant C-terminal human IgG1 Fc-tagged erythropoietin expressed in HEK293 cells
Amino Acids:	28-193
Uniprot No.:	P01588
Molecular Weight:	45.1 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥95% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	<1.0 EU/μg, determined by the LAL endotoxin assay
Bioactivity:	See figures for details

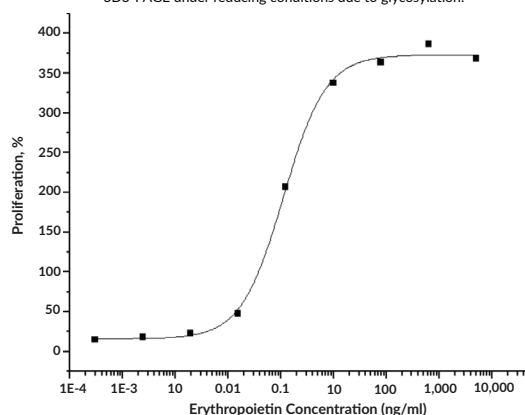
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images

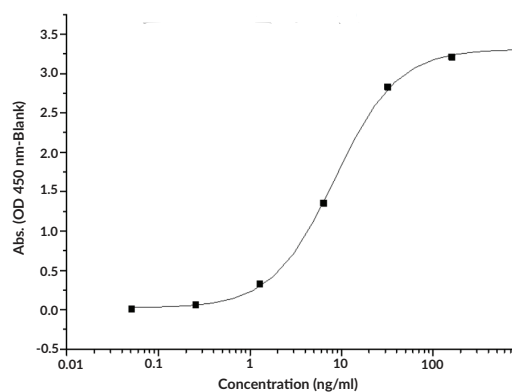


Lane 1: MW Markers
Lane 2: Erythropoietin

SDS-PAGE Analysis of Erythropoietin. This protein has a calculated molecular weight of 45.1 kDa. It has an apparent molecular weight of approximately 60 kDa by SDS-PAGE under reducing conditions due to glycosylation.



Erythropoietin measured in a cell proliferation assay using TF-1 human erythroleukemic cells. The EC_{50} value for this effect is typically 2.0-8.0 ng/ml.



Immobilized recombinant human EPO Receptor/EPOR binds to Erythropoietin (human, recombinant) at 2 μg/ml (100 μl/well). The EC_{50} value for this effect is typically 5-15 ng/ml.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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Description

Erythropoietin is a glycoprotein and growth factor encoded by *EPO* in humans that is essential for erythropoiesis.¹ It undergoes co-translational cleavage to remove the 27-amino acid leader sequence and can undergo post-translational cleavage to remove Arg193 to generate des-Arg erythropoietin, which has been found in the circulation.^{2,3} Mature erythropoietin is a single-chain polypeptide consisting of a 50% helical structure in a globular conformation and contains three N-linked and one O-linked carbohydrate.^{1,3} It is primarily produced in the kidney, and to a lesser extent in the liver, at low levels under homeostatic conditions, but production is increased in response to erythropoietic stress such as hypoxia or anemia.⁴ Erythropoietin binds to the erythropoietin receptor on immature erythrocytes in the bone marrow to induce erythrocyte production. Knockdown of *Epo* induces severe anemia, ventricular hypoplasia, and death at an early embryonic age in mice.⁵ Exogenous administration of erythropoietin reduces left ventricular end diastolic pressure and cardiomyocyte loss in a rat model of ischemia-reperfusion injury induced by coronary artery occlusion. It also increases cardiac neovascularization and decreases cardiac fibrosis in various animal models of myocardial infarction. Formulations containing recombinant human erythropoietin have been used in the treatment of chronic kidney disease-induced anemia. Cayman's Erythropoietin (human, recombinant) protein is a disulfide-linked homodimer. The reduced monomer, composed of erythropoietin (amino acids 28-193) fused to human IgG1 Fc at its C-terminus, consists of 404 amino acids, has a calculated molecular weight of 45.1 kDa, and a predicted N-terminus of Ala28 after signal peptide cleavage. As a result of glycosylation, the monomer migrates at approximately 60 kDa by SDS-PAGE under reducing conditions.

References

1. Fried, W. Erythropoietin. *Annu. Rev. Nutr.* **15**, 353-377 (1995).
2. Recny, M.A., Scoble, H.A., and Kim, Y. Structural characterization of natural human urinary and recombinant DNA-derived erythropoietin. Identification of des-arginine 166 erythropoietin. *J. Biol. Chem.* **262**(35), 17156-17163 (1987).
3. Jelkmann, W. Erythropoietin: Structure, control of production, and function. *Physiol. Rev.* **72**(2), 449-489 (1992).
4. Watowich, S.S. The erythropoietin receptor: Molecular structure and hematopoietic signaling pathways. *J. Investig. Med.* **59**(7), 1067-1072 (2011).
5. Vogiatzi, G., Briasoulis, A., Tousoulis, D., *et al.* Is there a role for erythropoietin in cardiovascular disease? *Expert Opin. Biol. Ther.* **10**(2), 251-264 (2010).

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