

Recombinant Rat Erythropoietin (EPO) (carrier-free)

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| Catalog# / Size | 592302 / 10 µg 592306 / 100 µg |
| Regulatory Status | RUO |
| Other Names | Hematopoietin, MVCD2, EP |
| Description | <p>Rat Erythropoietin was cloned in 1992, and it has a 79% and 95% homology with human and mouse EPOs, respectively. EPO is a glycoprotein composed of 40-60% carbohydrates, and its molecular weight varies from 30-34 kD depending on the carbohydrate percentage. Hypoxia induces erythropoiesis, and hypoxia inducible factor (HIF) is directly involved in EPO expression. HIF is a heterodimeric transcription factor (HIF-1α, HIF-2α, and beta subunits), and it is regulated by HIF-prolyl hydroxylase (HIF-PH) that hydroxylates the alpha subunits targeting them for ubiquitination and subsequent degradation. HIF-PH is a sensor of levels of iron, oxygen, and metabolic activity. High levels of HIF protein induce EPO production in the kidney and liver, and mobilization of iron to support erythropoiesis. EPO binds to EPOR, and transcripts of this receptor have been detected in non-erythroid precursors such as endothelial cells and renal proximal epithelial cells; nevertheless, it has been published that functional erythropoietin receptor is not detected in endothelial, cardiac, neuronal, and renal cells. Several transcription factors play a role in the expression of EPOR such as GATA1, Friend of GATA (Fog1), and the erythroid specific factor SCL/Tal1. EPO has been used to treat anemia associated with chronic kidney disease, cancer patients on chemotherapy, and as an antiviral HIV therapy.</p> |

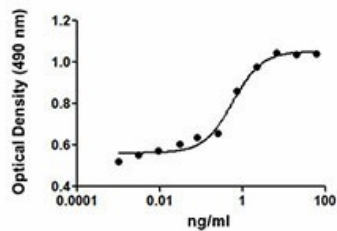
Product Details

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| Source | Rat EPO, amino acids (Ala27-Arg192) (Accession# D10763) was expressed in CHO cells. |
| Molecular Mass | The 166 amino acid recombinant protein has a predicted molecular mass of approximately 18.5 kD. The DTT-reduced and non-reduced glycosylated protein migrate at approximately 35-50 kD by SDS-PAGE. The N-terminal amino acid is Ala. |
| Purity | >95%, as determined by Coomassie stained SDS-PAGE. |
| Formulation | 0.22 µm filtered protein solution is in 1X PBS, pH 7.2. |
| Endotoxin Level | Less than 0.01 ng per µg cytokine as determined by the LAL method. |
| Concentration | 10 and 25 µg sizes are bottled at 200 µg/mL. 100 µg size and larger sizes are lot-specific and bottled at the concentration indicated on the vial. To obtain lot-specific concentration, please enter the lot number in our Concentration and Expiration Lookup or Certificate of Analysis online tools. |
| Storage & Handling | Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 µg/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week and stored at -20°C or colder for up to 3 months. Avoid repeated freeze/thaw cycles. |
| Activity | ED ₅₀ = 0.5 - 2.5 ng/ml, corresponding to a specific activity of 0.4 - 2.0 x 10 ⁶ units/mg, as determined by induction of TF-1 cell proliferation. |
| Application | Bioassay |
| Application Notes | BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue-ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are verified in-house to maintain activity after shipping on blue ice and are backed by our 100% satisfaction guarantee . If you have any concerns, contact us at tech@biolegend.com . |
| Product Citations | 1. Yasuoka Y, <i>et al.</i> 2022. Molecules. 23:. PubMed |

Antigen Details

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| Distribution | EPO is primarily expressed in the kidney (70-90% of the total EPO) and liver. EPO is expressed by hepatocytes, cortical interstitial fibroblasts in ischemic kidneys, astrocytes, and neurons under hypoxia. |
| Function | EPO is the major regulator of differentiation, proliferation, and survival of erythroid progenitors. EPO expression is induced by hypoxia; HIF, among other transcription factors, regulates the EPO expression. EPO has a possible role in neuroprotection. |
| Interaction | Erythroid progenitor cells. |
| Ligand/Receptor | EpoR (homodimer). |
| Cell Type | Embryonic Stem Cells |
| Biology Area | Cell Biology, Signal Transduction, Stem Cells |
| Molecular Family | Cytokines/Chemokines, Growth Factors |
| Antigen References | <ol style="list-style-type: none">1. Nagao M, et al. 1992. <i>Biochim. Biophys. Acta.</i> 1171:99.2. Chin K, et al. 2000. <i>Brain Res. Mol. Brain Res.</i> 81:29.3. Snow JW and Orkin SH. et al. 2009. <i>J. Biol. Chem.</i> 284:29310.4. Kassouf MT, et al. 2010. <i>Genome Res.</i> 20:1064.5. Paliege A, et al. 2010. <i>Kidney Int. (Nature)</i> 77:312.6. Sinclair AM, et al. 2010. <i>Blood</i> 115:4264.7. Mawadda A, et al. 2012. <i>Anatomy Research International</i> 2012: Article ID 953264. |
| Gene ID | 24335 |

Product Data



TF-1 cell proliferation induced by rat EPO.

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