Recombinant Canine Erythropoietin/EPO

Catalog Number: 3816-CE/CF

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived canine Erythropoietin/EPO protein Ala41-Arg206 Accession # P33707
N-terminal Sequence Analysis	Ala41
Predicted Molecular Mass	18.4 kDa

SPECIFICATIONS

SDS-PAGE	36-38 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. Kitamura, T. *et al.* (1989) J. Cell Physiol. **140**:323. The ED_{50} for this effect is 0.4-2 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

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). Glycosylation of EPO is required for biological activities in vivo (3). Mature canine EPO shares 95% amino acid sequence identity with feline EPO and 80%-89% with bovine, equine, human, 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 (4). It is also produced in much lower, but functionally significant amounts by fetal hepatocytes and in adult liver and brain (5-7). EPO promotes erythrocyte formation by preventing the apoptosis of early erythroid precursors which express the EPO receptor (EPO R) (7, 8). EPO R has also been described in brain, retina, heart, skeletal muscle, kidney, endothelial cells, and a variety of tumor cells (6, 7, 9, 10). Ligand induced dimerization of EPO R triggers JAK2-mediated signaling pathways followed by receptor/ligand endocytosis and degradation (1, 11). Rapid regulation of circulating EPO allows tight control of erythrocyte production and hemoglobin concentrations. Anemia or other causes of low tissue oxygen tension induce EPO production by stabilizing the hypoxia-inducible transcription factors HIF-1α and HIF-2α (1, 5). EPO additionally plays a tissue-protective role in ischemia by blocking apoptosis and inducing angiogenesis (6, 7, 12).

References:

1. Koury, M.J. (2005) Exp. Hematol. **33**:1263.
2. Wen, D. *et al.* (1993) Blood **82**:1507.
3. Tsuda E., *et al.* (1990) Eur. J. Biochem. **188**:405.
4. Lacombe, C. *et al.* (1988) J. Clin. Invest. **81**:620.
5. Eckardt, K. U. and A. Kurtz (2005) Eur. J. Clin. Invest. **35** Suppl. 3:13.
6. Sharples, E. J. *et al.* (2006) Curr. Opin. Pharmacol. **6**:184.
7. Rossert, J. and K. Eckardt (2005) Nephrol. Dial. Transplant **20**:1025.
8. Koury, M.J. and M.C. Bondurant (1990) Science **248**:378.
9. Acs, G. *et al.* (2001) Cancer Res. **61**:3561.
10. Hardee, M.E. *et al.* (2006)Clin. Cancer Res. **12**:332.
11. Verdier, F. *et al.* (2000) J. Biol. Chem. **275**:18375.
12. Kertesz, N. *et al.* (2004) Dev. Biol. **276**:101.

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