SANTA CRUZ BIOTECHNOLOGY, INC.

Epo (hBA-165): sc-4620

BACKGROUND

Erythropoietin, or Epo, is the primary factor responsible for regulating erythropoiesis during steady-state conditions and in response to blood loss and hemorrhage in the adult organism. In addition, Epo has also been shown to play a role in primitive embryonic erythropoiesis. Epo is synthesized by the kidney and stimulates the proliferation and maturation of bone marrow erythroid precursor cells. Circulating Epo is a 165 amino acid glycoprotein. The Epo receptor, EpoR, is a glycoprotein expressed on megakaryocytes, erythroid progenitors and endothelial cells. Overexpression of Epo is associated with several pathophysiological conditions, such as polycythemias vera, which is caused by the Epo-independent growth of erythrocytic progenitors from abnormal stem cells. A deficiency in Epo expression has been associated with afflictions such as anemia of chronic disease (ACD), frequently found in rheumatoid arthritis (RA) patients.

REFERENCES

1. Jelkmann, W. 1992. Erythropoietin: structure, control of production, and function. Physiol. Rev. 72: 449-489.
2. Dai, C.H., et al. 1992. Polycythemia vera. II. Hypersensitivity of bone marrow erythroid, granulocyte-macrophage, and megakaryocyte progenitor cells to interleukin-3 and granulocyte-macrophage colony-stimulating factor. Blood 80: 891-899.
3. Takahashi, T., et al. 1995. Character- ization of three erythropoietin (Epo)-binding proteins in various human Epo-responsive cell lines and in cells transfected with human Epo-receptor cDNA. Blood 85: 106-114.
4. Lin, C.S., et al. 1996. Differential effects of an erythropoietin receptor gene disruption on primitive and definitive erythropoiesis. Genes Dev. 10: 154-164.
5. Nakamura, Y., et al. 1996. Role of a truncated erythropoietin receptor for erythroid differentiation. Biochem. Biophys. Res. Commun. 218: 205-209.
6. Ifudu, O., et al. 1996. The intensity of hemodialysis and the response to erythropoietin in patients with end-stage renal disease. N. Engl. J. Med. 334: 420-425.

CHROMOSOMAL LOCATION

Genetic locus: EPO (human) mapping to 7q22.1; Epo (mouse) mapping to 5 G2.

SOURCE

Epo (hBA-165) is produced in *E. coli* as 45 kDa biologically active, GST-tagged fusion protein corresponding to 162 amino acids of human Epo of human origin.

PRODUCT

Epo (hBA-165) is purified from bacterial lysates (>98%); supplied as 50 µg purified protein.

STORAGE

Store desiccated at -20° C; stable for one year from the date of shipment.

APPLICATIONS

Epo (hBA-165) is recommended for use as a Western blotting control for sc-1310, sc-1310-G, sc-5290, sc-7956, sc-80995 and sc-383701.

Molecular Weight of Epo: 37 kDa.

BIOLOGICAL ACTIVITY

Epo (hBA-165) is biologically active as determined by the study of Normocythaemic mice.

Specific Activity: ED_{50} = 60 ng/mL

RECONSTITUTION

In order to avoid freeze/thaw damaging of the active protein, dilute protein when first used to desired working concentration. Either a sterile filtered standard buffer (such as 50mM TRIS or 1X PBS) or water can be used for the dilution. Store any thawed aliquot in refrigeration at 2° C to 8° C for up to four weeks, and any frozen aliquot at -20° C to -80° C for up to one year. It is recommended that frozen aliquots be given an amount of standard cryopreservative (such as Ethylene Glycol or Glycerol 5-20% v/v), and refrigerated samples be given an amount of carrier protein (such as heat inactivated FBS or BSA to 0.1% v/v) or non-ionic detergent (such as Triton X-100 or Tween 20 to 0.005% v/v), to aid stability during storage.

SELECT PRODUCT CITATIONS

1. Rex, T.S., et al. 2004. Systemic but not intraocular Epo gene transfer protects the retina from light-and genetic-induced degeneration. Mol. Ther. 10: 855-861.
2. Joshi, D., et al. 2011. Development of an *in vitro* model of myotube ischemia. Lab. Invest. 91: 1241-1252.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.