



Product Information

Erythropoietin

Rat, Recombinant
Expressed in insect cell line

Product Number **E 8905**

Product Description

Erythropoietin (Epo) is produced from a DNA sequence encoding rat erythropoietin (Met 1-Arg 192).¹ Mature soluble recombinant rat Epo has Ala 27 at the amino-terminus. The 166 amino acid residue soluble Epo has a calculated molecular mass of approximately 18.5 kDa. Due to glycosylation, the recombinant protein migrates as a 22-26 kDa in SDS-PAGE.

Erythropoietin has been cloned from various species including human, murine, canine, etc. The mature proteins from the various species are highly conserved, exhibiting greater than 80% amino acid sequence identity. Rat Epo cDNA encodes a 192 amino acid residue precursor protein that is processed to yield a 166 amino acid residue mature protein. Epo contains 3 N-linked glycosylation sites. Glycosylation of Epo is required for the biological activities of Epo *in vivo*.

Erythropoietin, a glycoprotein produced primarily by the kidney and at lower levels by the liver, is the primary regulatory factor of erythropoiesis.² Epo promotes the proliferation, differentiation, and survival of the erythroid progenitors. Epo stimulates erythropoiesis by inducing growth and differentiation of burst forming units and colony forming units into mature red blood cells.³ Epo produced by kidney cells is increased in response to hypoxia or anemia.

The biological effects of erythropoietin are mediated by the erythropoietin receptor, which binds Epo with high affinity and is a potent Epo antagonist. When Epo is present at low concentrations, the Epo receptor initiates prolongation of G1 in the cell cycle and sends a differentiation signal; whereas at high Epo concentrations, a proliferation signal is generated and the G1 is shortened.⁴

Reagent

Recombinant Rat Erythropoietin is supplied as approximately 10 µg of protein lyophilized from a 0.2 µm filtered solution in phosphate buffered saline (PBS) containing 0.5 mg of bovine serum albumin.

Preparation Instructions

Reconstitute the contents of the vial using 0.2 µm filtered phosphate buffered saline containing at least 0.1% human serum albumin or bovine serum albumin. Prepare a stock solution of no less than 10 µg/ml.

Storage/Stability

Store at -20 °C. Upon reconstitution, store at 2-8 °C for to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Do not store in a frost-free freezer.

Product Profile

Recombinant Rat Erythropoietin is measured by its ability to stimulate cell proliferation using TF-1 cells.⁵

Endotoxin: < 1.0 EU (endotoxin unit)/µg cytokine as determined by the LAL (Limulus ameocyte lysate) method.

References

1. Nagao, M., et al., *Biochim. Biophys. Acta.*, **117**, 99-102 (1992).
2. Lacombe, C., and Maeux, O., *Haematologica*, **83**, 724-732 (1998).
3. Egrie, J., et al., *Human Cytokines*, Aggarwal, B., et al., (eds.), Blackwell Scientific Publications, Boston, 383 (1992).
4. Carroll, M., et al., *Proc. Natl. Acad. Sci. USA*, **92**, 2869-2873 (1995).
5. Kitamura, T., et al., *J. Cell Physiol.*, **140**, 323-334 (1989).

Kaa 05/04

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.