

Product Information

Anti-Erythropoietin Receptor

produced in goat, affinity isolated antibody

Catalog Number **E4644**

Synonym: Anti- EPO R

Product Description

Anti-Erythropoietin Receptor (EPO R) is produced in goat using as immunogen purified recombinant human erythropoietin soluble receptor expressed in mouse myeloma NSO cells. Affinity isolated antigen specific antibody is obtained from goat anti-erythropoietin receptor antiserum by immunospecific purification which removes essentially all goat serum proteins, including immunoglobulins, which do not specifically bind to the peptide.

Anti-Erythropoietin Receptor recognizes recombinant human erythropoietin receptor by various immunochemical techniques including immunoblotting.

Recombinant human Erythropoietin Receptor (EPO R) is a type I membrane-spanning protein, expressed in a mouse myeloma cell line, NSO. This product is produced from a cDNA sequence encoding the extracellular domain of the hEPO receptor.¹ The 225 amino acid residue mature recombinant soluble hEPO receptor, generated after cleavage of a 25 amino acid residue signal peptide, has a predicted molecular mass of ~25 kDa. From glycosylation, recombinant human EPO receptor migrates as an ~32 kDa protein in SDS-PAGE.

Erythropoietin (EPO), a glycoprotein produced primarily by the kidney and at lower levels by the liver, is the primary regulatory factor of erythropoiesis.^{2,3} EPO promotes the proliferation, differentiation, and survival of the erythroid progenitors. The biological effects of EPO are mediated by the erythropoietin receptor (EPO-R). The EPO receptor belongs to the cytokine receptor superfamily, which includes the receptors for granulocyte-macrophage colony-stimulating factor (GM-CSF), granulocyte colony-stimulating factor (G-CSF), IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, LIF, and others.^{4,5}

These receptors contain four conserved cysteines and a Trp-Ser-X-Trp-Ser (WSXWS) motif in their extracellular domains, where X represents any amino acid. The EPO receptor differs from the other members

of the cytokine receptor superfamily in that the EPO receptor can be stimulated to signal cell growth by binding either EPO or gp55.⁶ Human and mouse EPO receptor share 82% identity in their amino acid sequence.⁴ Truncated and soluble forms of the EPO receptor result from alternative splicing of the EPO receptor gene. The gene for human EPO receptor has been mapped to the p region of chromosome 19.⁷

Recombinant EPO receptor 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 of the cell cycle and sends a differentiation signal; whereas at high EPO concentrations, a proliferation signal is generated and the G1 is shortened.⁸ EPO binding induces the stimulation of Jak2 tyrosine kinase, which leads to tyrosine phosphorylation of several proteins, including the EPO receptor, resulting in the activation of intracellular pathways (Ras/MAP kinase, phosphatidylinositol 3-kinase, and STAT transcription factors).^{6,9-10}

Human Erythropoietin Receptor is expressed in megakaryocytes, erythroid progenitors, endothelial cells, and, possibly neurons.⁴ It has also been found in human sera. Expression of the EPO receptor in normally IL-3-dependent cell lines such as Ba/F3 (pro-B lymphocyte cell line) or 32D (myeloid progenitor cell line) allows cell proliferation in the presence of either EPO or IL-3, indicating that the EPO receptor is capable of generating a proliferative signal in these cells.^{4,6}

Reagent

Supplied lyophilized from a 0.2 µm filtered solution of phosphate buffered saline containing 5% trehalose.

Preparation Instructions

Reconstitute the contents of the vial using 1 mL of sterile phosphate-buffered saline to produce a 0.1 mg/mL stock solution of antibody.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Prior to reconstitution, store at -20°C . Reconstituted product may be stored at $2-8^{\circ}\text{C}$ for up to one month. For extended storage, freeze in working aliquots at -20°C . Repeated freezing and thawing is not recommended.

Product Profile

Immunoblotting: a working concentration of 0.1-0.2 $\mu\text{g}/\text{mL}$ detects human EPO receptor. The detection limit is ~ 5 ng/lane under non-reducing and reducing conditions.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining optimal working dilutions by titration.

References

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