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ProductInformation

INTERLEUKIN-1 SOLUBLE RECEPTOR TYPE I (IL-1 sRI)
Human, Recombinant
Expressed in mouse NSO cells

Product Number **I 0654**

Product Description

Interleukin-1 soluble Receptor Type I (IL-1 sRI) is produced from a DNA sequence encoding the amino-terminal 332 amino acid residues of the extracellular domain of human IL-1 receptor Type I protein.[1] The 312 amino acid residue, generated after removal of a 20 amino acid residue signal peptide, has a predicted molecular mass of approximately 36 kDa. Presumably as a result of glycosylation, the recombinant protein migrates as an approximately 55 kDa protein in SDS-PAGE.

Interleukin 1 (IL-1) is a general name for two distinct proteins, IL-1α and IL-1β, that act as primary regulators of inflammatory and immune responses. The IL-1 receptor is located on many cell types including T cells, B cells, monocytes, NK cells, basophils, neutrophils, eosinophils, dendritic cells, fibroblasts, endothelial cells, vascular endothelial cells and neural cells. IL-1 Receptor Type I, a transmembrane protein, is composed of a single polypeptide chain that binds both IL-1 α and IL-1 β and is a potent antagonist of IL-1 action. The Type I receptor complex appears to mediate all known IL-1 biological responses.

Interleukin-1 receptor Type I and Interleukin-1 receptor Type II are members of the immunoglobulin super-family. Both exhibit approximately 28 % sequence identity in their extracellular domains and do not heterodimerize into a receptor complex. Other members of this family of proteins that share significant homology in their signaling domains include: the IL-1 receptor accessory protein (IL-1AcP), [2] which does not bind IL-1, but is essential for IL-1 signaling; a Drosophila protein Toll; a number of human Toll-like receptors (TLRs); and the putative IL-18/IL-1- receptor IL-1Rrp (IL-1 receptor-related protein). All appear to be involved in host responses to injury and infection.

IL-1 receptor mediates its action through at least two kinases. Two IL-1 receptor-associated kinases, IRAK-1 and IRAK-2 have been implicated in the activation of the transcription factor, nuclear factor B (NF-B). IRAK-1 has also been implicated in AP1 induction, Jun amino-terminal kinase (JNK) activation, and IL-2 induction. It recruits the adapter protein TRAF6 to the IL-1 receptor complex via an interaction with IL-1AcP. Then TRAF6 relays the signal via NF-B-inducing kinase (NIK) to two I-B kinases (IKK-1 and -2), leading to NF-B activation.[3-5]

Reagent

Recombinant human Interleukin-1 soluble Receptor Type I is supplied as approximately 100 µg of protein lyophilized from a 0.2 µm filtered solution in phosphate buffered saline (PBS) containing 5 mg of bovine serum albumin.

Preparation Instructions

Reconstitute the contents of the vial using sterile phosphate-buffered saline (PBS) containing at least 0.1% human serum albumin or bovine serum albumin. Prepare a stock solution of no less than 50 µg/ml.

Storage/Stability

Store at –20 °C. Upon reconstitution, store at 2 °C to 8 °C for 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 human Interleukin-1 soluble Receptor Type I is measured by its ability to inhibit the IL-1β-dependent proliferation of a murine helper T cell line, D10.G4.1.

Approximately 0.5 to 1.0 µg/ml of IL-1 sRI will inhibit 50 % of the biological response due to 50 pg/ml of recombinant IL-1.

Purity: >97 % as determined by SDS-Page, visualized by silver stain.

Endotoxin level is < 0.1 ng/µg protein as determined by the LAL (Limulus amebocyte lysate) method.

References

1. Sims, J., et al., Proc. Natl. Acad. Sci. USA, **86**, 8946 (1989).
2. Greenfeder, S., et al., J. Biol. Chem., **270**, 13757 (1995).
3. O'Neill, L.A. and Greene, C.J., Leukoc. Biol., **63**, 650 (1998).
4. Dinarello, C.A., Int. Rev. Immunol., **16**, 457 (1998).
5. Saklatvalla, J., et al., Biochem. Soc. Symp., **64**, 63 (1999).

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