Recombinant Human IL-1RACP (IL-1R3)-Fc Chimera (carrier-free)

Catalog# / Size
774802 / 10 µg
774804 / 25 µg
774806 / 100 µg
774808 / 500 µg

Regulatory Status
RUO

Other Names
Interleukin-1 receptor accessory protein, IL-1 receptor accessory protein, IL-1RACP, IL-1RAP, interleukin-1 receptor 3, IL-1R3, IL-1R-3

Description
IL-1RACP, also known as IL-1R3, belongs to the IL-1 receptor family. IL-1RACP consists of an extracellular domain containing three Ig-like C2 type domains, a transmembrane region and a cytoplasmic portion with a TIR (Toll-IL-1-receptor) domain. IL-1RACP forms a heterodimer with IL-1R1, IL-1RL1 (also known as ST2, IL-1R4), or IL-1Rrp2 (IL-1R6) and functions as a coreceptor for IL-1, IL-33, and IL-36. However, IL-1RACP does not directly bind to ligands. Upon ligand binding to IL-1R1, IL-1RACP is recruited to form a high affinity heterodimeric receptor complex. Subsequently, the TIR domains of IL-1R1 and IL-1RACP recruit the downstream molecules, MyD88, IRAKs and TRAF6 and the signaling cascade is transduced, including NF-κB, MAPK, and JNK pathways. The same mechanisms occur upon IL-33 and IL-36 activation. There are two isoforms identified due to alternative splicing, membrane-bound and soluble forms. Soluble IL-1RACP is found in mouse liver and the expression levels are regulated by different stimuli, such as phorbol esters. Soluble IL-1RACP serves as an inhibitor of IL-1 signaling by enhancing binding affinity of soluble IL-1R2 to IL-1. In addition, membrane-bound IL-1R2 inhibits IL-1 signaling by sequestering IL-1 and IL-1RACP, limiting the availability of IL-1RACP for engagement of receptor complex. However, IL-1Ra does not bind to IL-1RACP. Another IL-1RACP variant, called IL-1R3b or IL-1RACPb, has been described. The expression is restricted in central nervous system and it modulates neuronal response to IL-1. The dysregulation of IL-1RACP expression associates with several diseases, such as acute myeloid leukemia (AML) and myelodysplastic syndromes (MDS).

Product Details

Source
Human IL-1RACP, amino acid (Ser21-Glu359) (Accession: #Q9NPH3) with a C-terminal human IgG1 (Lys100-Pro330), followed by a 6x His tag, was expressed in 293E cells.

Molecular Mass
The 580 amino acid recombinant protein has a predicted molecular mass of approximately 66.26 kD. The DTT-reduced and non-reduced protein migrates at approximately 80 kD and 160 kD by SDS-PAGE. The predicted N-terminal amino acid is Ser.

Purity
>98%, as determined by Coomassie stained SDS-PAGE.

Formulation
0.22 µm filtered protein solution is in PBS, pH 7.2.

Endotoxin Level
Less than 0.1 EU per µg cytokine as determined by the LAL method.

Concentration
10 and 25 µg sizes are bottled at 200 µg/mL. 100 µg and larger sizes are lot-specific and bottled at the concentration indicated on the vial. To obtain lot-specific concentration, please enter the lot number in our Concentration and Expiration Lookup or Certificate of Analysis online tools.

Storage & Handling
Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 µg/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week and stored at -20°C or colder for up to 3 months. Avoid repeated freeze/thaw cycles.

Activity
The ED₅₀ = 0.8 - 4 µg/mL, as determined by its ability to inhibit human IL-1α (Cat. No. 570002) - induced IL-8 production on human liver carcinoma HepG2 cells in the presence of 1 µg/mL of human IL-1R2 (Cat. No. 767902). Human IL-8 ELISA MAX™ Deluxe Kit (Cat. No. 431504) was used to measure IL-8 production.

Application
Bioassay

Application Notes
BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid
format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are verified in-house to maintain activity after shipping on blue ice and are backed by our 100% satisfaction guarantee. If you have any concerns, contact us at tech@biolegend.com.

**Antigen Details**

**Structure**  
Cytokine receptor

**Distribution**  
Ubiquitously expressed in all cells responsive to IL-1, including T cells, fibroblasts, endothelial cells, epithelial cells, monocytes, dendritic cells, cardiomyocytes; plasma membrane

**Function**  
IL-1RAcP is a co-receptor for IL-1, IL-33 and IL-36. It is required for downstream signaling. The soluble form of IL-1RAcP serves as an inhibitor of IL-1 signaling.

**Ligand/Receptor**  
IL-1R1, IL-1R2, IL-1RL1, IL-1Rrp2

**Cell Type**  
Hematopoietic stem and progenitors

**Biology Area**  
Cancer Biomarkers, Cell Biology, Immunology, Stem Cells

**Molecular Family**  
Soluble Receptors

**Antigen References**


**Gene ID**  
3556

**Product Data**

Human IL-1R Accessory protein inhibits the production of IL-8 in human liver carcinoma HepG2 cells induced by recombinant human IL-1α. The ED50 for this effect is 0.8 – 4 µg/mL.

Stability testing for human IL-1RAcP (IL-1R3). Human IL-1RAcP was aliquoted in PBS at 0.2 mg/mL, and one aliquot was kept at 4°C (control) and another was frozen and thawed four times (4X freeze/thaws). After this procedure, the samples were tested by their property to inhibit the production of IL-8 in human liver carcinoma HepG2 cells induced by recombinant human IL-1α.