

IL-1RA Protein, Rat, Recombinant (hFc)

General Information

Synonyms:	interleukin 1 receptor antagonist
Protein Construction:	A DNA sequence encoding the rat IL1RN (P25086) (His27-Gln178) was expressed, fused with Fc region of human IgG1 at the N-terminus. Predicted N terminal: Glu
Species:	Rat
Expression Host:	HEK293 Cells
Accession:	P25086
Molecular Weight:	45.8 kDa (predicted); 47 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Immobilized rat IL1R1-His at 10 µg/ml (100 µl/well) can bind rat Fc-IL1RN, The EC50 of rat Fc-IL1RN is 5.1-11.9 ng/ml.
Purity:	> 85 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/µg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:
A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Shipping:

In general, Lyophilized powders are shipping with blue ice.

Protein Background

Interleukin-1 receptor antagonist (IL-1RA) also known as IL1RN is a member of the interleukin 1 cytokine family. This protein inhibits the activities of interleukin 1, alpha (IL1A), and interleukin 1, beta (IL1B), and modulates a variety of interleukin 1 related immune and inflammatory responses. A polymorphism of this protein-encoding gene is reported to be associated with an increased risk of osteoporotic fractures and gastric cancer. IL-1RA/IL1RN may inhibit the activity of IL-1 by binding to its receptor and it has no IL-1 like activity. Genetic variation in IL-

1RA/IL1RN is associated with susceptibility to microvascular complications of diabetes type 4 (MVCD4). These are pathological conditions that develop in numerous tissues and organs as a consequence of diabetes mellitus. They include diabetic retinopathy, diabetic nephropathy leading to end-stage renal disease, and diabetic neuropathy. Diabetic retinopathy remains the major cause of new-onset blindness among diabetic adults. It is characterized by vascular permeability and increased tissue ischemia and angiogenesis. Defects in IL-1RA/IL1RN are the cause of interleukin 1 receptor antagonist deficiency (DIRA) which is also known as deficiency of interleukin 1 receptor antagonist. Autoinflammatory diseases manifest inflammation without evidence of infection, high-titer autoantibodies, or autoreactive T-cells. DIRA is a rare, autosomal recessive, genetic autoinflammatory disease that results in sterile multifocal osteomyelitis, and pustulosis from birth.

Reference

- Langdahl BL, et al. (2000) Osteoporotic fractures are associated with an 86-base pair repeat polymorphism in the interleukin-1--receptor antagonist gene but not with polymorphisms in the interleukin-1beta gene. *J Bone Miner.* 15 (3): 402-14.
- El-Omar EM, et al. (2000) Interleukin-1 polymorphisms associated with increased risk of gastric cancer. *Nature.* 404 (6776): 398-402.
- Steinkasserer A, et al. (1992) The human IL-1 receptor antagonist gene (IL1RN) maps to chromosome 2q14-q21, in the region of the IL-1 alpha and IL-1 beta loci. *Genomics.* 13 (3): 654-7.

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