

PRODUCT INFORMATION

IGF-1R/CD221 Extracellular Domain (human, recombinant)

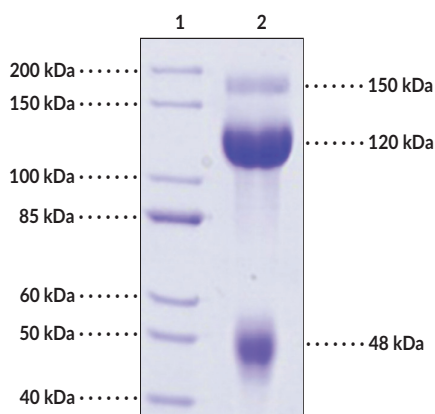
Item No. 33982

Overview and Properties

Synonyms: CD221, IGF-I Receptor, Insulin-like Growth Factor Receptor α - and β -chains
Source: Active recombinant human C-terminal His-tagged IGF-1R expressed in HEK293 cells
Amino Acids: 31-932
Uniprot No.: P08069
Molecular Weight: 81, 23, and 104 kDa for the α subunit, β subunit, and single chain of the receptor, respectively
Storage: -80°C (as supplied)
Stability: ≥ 1 year
Purity: $\geq 90\%$ estimated by SDS-PAGE
Supplied in: Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing: < 1.0 EU/ μ g, determined by the LAL endotoxin assay
Bioactivity: Measured by its ability to bind IGF-1 (human, recombinant) in functional ELISA

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers

Lane 2: IGF-1R/CD221 Extracellular Domain

SDS-PAGE Analysis of IGF-1R/CD221 Extracellular Domain.

This protein has a calculated molecular weight of 81 (α subunit), 23 (β subunit), and 104 kDa (single chain). It has an apparent molecular weight of approximately 120, 48, and 150 kDa, respectively, by SDS-PAGE under reducing conditions due to glycosylation.

WARNING
 THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
 This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
 Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Insulin-like growth factor 1 receptor (IGF-1R), also known as CD221, is a member of the type II receptor tyrosine kinase family, previously known as the insulin receptor family.¹ It is synthesized as a preproreceptor with a signal peptide that is cleaved by a furin protease to produce an α - and a β -chain.² The mature protein forms homodimers, which are composed of two extracellular α -chain subunits that comprise the ligand-binding domain, a transmembrane domain, and two intracellular β -chain subunits that contain a tyrosine kinase domain and a C-terminal tail containing several phosphorylation sites located in two interactor domains, which are separated by a regulatory domain.^{1,3} It is ubiquitously expressed and, when activated by its ligand IGF-1, IGF-1R undergoes autophosphorylation then phosphorylates and activates intracellular proteins, including insulin receptor substrate (IRS) proteins, activating downstream signaling via the PI3K/Akt, Rac, and RAS/RAF/MEK/ERK pathways.¹ Through these signaling pathways, IGF-1R is involved in inhibition of apoptosis and the regulation of cell migration and proliferation. Overexpression or mutation of CD221 is associated with a variety of cancers, and SNPs in CD221 are positively correlated with an increased risk of cancer.⁴ IGF-1R protein levels are increased in neurons of the temporal cortex in postmortem brain tissue from patients with Alzheimer's disease, as well as around and within amyloid- β plaques.⁵ Increased levels of IGF-1R have been found in orbital fibroblasts, B cells, and T cells from patients with Graves' disease.⁶ Formulations containing anti-IGF-1R antibodies have been used in the treatment of Graves' orbitopathy. Cayman's IGF-1R/CD221 Extracellular Domain (human, recombinant) protein can be used for binding assays. This protein has calculated molecular weights of 81, 23, and 104 kDa for the α subunit, β subunit, and single chain of the receptor, respectively, and a predicted N-terminus of Glu31 after signal peptide cleavage. By SDS-PAGE, under reducing conditions, the apparent molecular masses are 120, 48, and 150 kDa, respectively, due to glycosylation.

References

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6. Smith, T.J., Huetwell, F.G.L., Hegedüs, L., *et al.* Role of IGF-1 pathway in the pathogenesis of Graves' orbitopathy. *Best Pract. Res. Clin. Endocrinol. Metab.* **26**(3), 291-302 (2012).

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