

Product datasheet

Recombinant human IGF1 Receptor protein ab155622

4 Images

Description

Product name	Recombinant human IGF1 Receptor protein
Biological activity	Measured by its ability to bind Human IGF-I in a functional ELISA.
Purity	> 95 % SDS-PAGE.
Endotoxin level	< 1.000 Eu/μg
Expression system	HEK 293 cells
Accession	P08069
Protein length	Protein fragment
Animal free	No
Nature	Recombinant
Species	Human
Sequence	<p>EICGPGIDIRNDYQQLKRENLCTVIEGYLHILLISKAEDYRSY RFPKLTV ITEYLLLFRVAGLESGLDFPNLTVIRGWKLFYNYALVIFEMT NLKDIGL YNLRNITRGAIRIEKNADLCYLSTVDWSLILDAVSNNYVGNK PPKECGD LCPGTMEEKPMCEKTTINNEYNYRCWTTNRCQKMCPSTC GKRACTENNEC CHPECLGSCSAPDNDTACVACRHYYYAGVCPACPPNT YRFEGWRCVDRD FCANILSAESSDSEGFVIHDGECMQECPSGFIRNGSQSMY CIPCEGPCPK VCEEEKKTKTIDSVTSAQMLQGCTIFKGNLLINIRRGNNIAS ELENFMGL IEVVTGYVKIRHSHALVSLSFKNLRLILGEEQLEGNYSFYV LDNQNLQQ LWDWDHRNLTIKAGKMYFAFNPKLCVSEIYRMEEVTGTKG RQSKGDINTR NNGERASCESDVLHFTSTTTSKNRIITWHRYRPPDYRDLIS FTVYYKEA PFKNVTEYDGGQDACGSNSWNMVDVDLPPNKDVEPGILL HGLKPWTQYAVY VKAVTLTMVENDHIRGAKSEILYIRTNASVPSIPLDVLASAN</p>

SSSQLIVK
WNPPSLPNGNLSYYVVRWQRQPQDGYLYRHNYCSKDKIPI
RKYADGTIDI
EEVTENPKTEVCGGEKGPCCACPKTEAEKQAEKEEAEY
RKVFENFLHNSI
FVPRPERKRRDVMQVANTTMSSRSRNTTAADTYNITDPEE
LETEYPPFES
RVDNKERTVISNLRPFTLYRIDIHSCNHEAEKLGCSASN
FV
FARTMPAEG
ADDIPGPVTWEPRPENSIFLKWPEPENPNGLILMYEIKYGS
QVEDQRECV
SRQEYRKYGGAKLNRLNPGNYTARIQATSLSGNGSWTDP
VFFYVQAKTGYEN

Predicted molecular weight	104 kDa including tags
Amino acids	31 to 932
Tags	His tag C-Terminus

Specifications

Our [Abpromise guarantee](#) covers the use of **ab155622** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Applications	Functional Studies ELISA SDS-PAGE
Form	Lyophilized
Additional notes	Measured by its ability to bind Human IGF-I in a functional ELISA.

Preparation and Storage

Stability and Storage	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C or -80°C. Avoid freeze / thaw cycle. pH: 7.40 Constituents: 95% PBS, 5% Trehalose This product is an active protein and may elicit a biological response in vivo, handle with caution.
Reconstitution	It is recommended to reconstitute the lyophilized protein in sterile deionized water to a final concentration of 400 ug/ml. Solubilize for 30 to 60 minutes at room temperature with occasional gentle mixing. Carrier protein (0.1% HSA or BSA) is strongly recommended for further dilution and long term storage.

General Info

Function	Receptor tyrosine kinase which mediates actions of insulin-like growth factor 1 (IGF1). Binds IGF1 with high affinity and IGF2 and insulin (INS) with a lower affinity. The activated IGF1R is involved in cell growth and survival control. IGF1R is crucial for tumor transformation and survival of malignant cell. Ligand binding activates the receptor kinase, leading to receptor autophosphorylation, and tyrosines phosphorylation of multiple substrates, that function as signaling adapter proteins
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including, the insulin-receptor substrates (IRS1/2), Shc and 14-3-3 proteins. Phosphorylation of IRSs proteins lead to the activation of two main signaling pathways: the PI3K-AKT/PKB pathway and the Ras-MAPK pathway. The result of activating the MAPK pathway is increased cellular proliferation, whereas activating the PI3K pathway inhibits apoptosis and stimulates protein synthesis. Phosphorylated IRS1 can activate the 85 kDa regulatory subunit of PI3K (PIK3R1), leading to activation of several downstream substrates, including protein AKT/PKB. AKT phosphorylation, in turn, enhances protein synthesis through mTOR activation and triggers the antiapoptotic effects of IGF1R through phosphorylation and inactivation of BAD. In parallel to PI3K-driven signaling, recruitment of Grb2/SOS by phosphorylated IRS1 or Shc leads to recruitment of Ras and activation of the ras-MAPK pathway. In addition to these two main signaling pathways IGF1R signals also through the Janus kinase/signal transducer and activator of transcription pathway (JAK/STAT). Phosphorylation of JAK proteins can lead to phosphorylation/activation of signal transducers and activators of transcription (STAT) proteins. In particular activation of STAT3, may be essential for the transforming activity of IGF1R. The JAK/STAT pathway activates gene transcription and may be responsible for the transforming activity. JNK kinases can also be activated by the IGF1R. IGF1 exerts inhibiting activities on JNK activation via phosphorylation and inhibition of MAP3K5/ASK1, which is able to directly associate with the IGF1R.

When present in a hybrid receptor with INSR, binds IGF1. PubMed:12138094 shows that hybrid receptors composed of IGF1R and INSR isoform Long are activated with a high affinity by IGF1, with low affinity by IGF2 and not significantly activated by insulin, and that hybrid receptors composed of IGF1R and INSR isoform Short are activated by IGF1, IGF2 and insulin. In contrast, PubMed:16831875 shows that hybrid receptors composed of IGF1R and INSR isoform Long and hybrid receptors composed of IGF1R and INSR isoform Short have similar binding characteristics, both bind IGF1 and have a low affinity for insulin.

Tissue specificity

Found as a hybrid receptor with INSR in muscle, heart, kidney, adipose tissue, skeletal muscle, hepatoma, fibroblasts, spleen and placenta (at protein level). Expressed in a variety of tissues. Overexpressed in tumors, including melanomas, cancers of the colon, pancreas prostate and kidney.

Involvement in disease

Insulin-like growth factor 1 resistance

Sequence similarities

Belongs to the protein kinase superfamily. Tyr protein kinase family. Insulin receptor subfamily. Contains 4 fibronectin type-III domains. Contains 1 protein kinase domain.

Post-translational modifications

Autophosphorylated on tyrosine residues in response to ligand binding. Autophosphorylation occurs in trans, i.e. one subunit of the dimeric receptor phosphorylates tyrosine residues on the other subunit. Autophosphorylation occurs in a sequential manner; Tyr-1165 is predominantly phosphorylated first, followed by phosphorylation of Tyr-1161 and Tyr-1166. While every single phosphorylation increases kinase activity, all three tyrosine residues in the kinase activation loop (Tyr-1165, Tyr-1161 and Tyr-1166) have to be phosphorylated for optimal activity. Can be autophosphorylated at additional tyrosine residues (in vitro). Autophosphorylated is followed by phosphorylation of juxtamembrane tyrosines and C-terminal serines. Phosphorylation of Tyr-980 is required for IRS1- and SHC1-binding. Phosphorylation of Ser-1278 by GSK-3beta restrains kinase activity and promotes cell surface expression, it requires a priming phosphorylation at Ser-1282. Dephosphorylated by PTPN1.

Polyubiquitinated at Lys-1168 and Lys-1171 through both 'Lys-48' and 'Lys-29' linkages, promoting receptor endocytosis and subsequent degradation by the proteasome. Ubiquitination is facilitated by pre-existing phosphorylation.

Sumoylated with SUMO1.

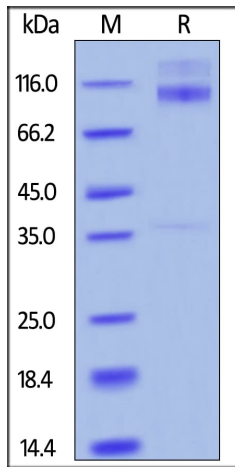
Controlled by regulated intramembrane proteolysis (RIP). Undergoes metalloprotease-dependent constitutive ectodomain shedding to produce a membrane-anchored 52 kDa C-Terminal fragment which is further processed by presenilin gamma-secretase to yield an intracellular 50

kDa fragment.

Cellular localization

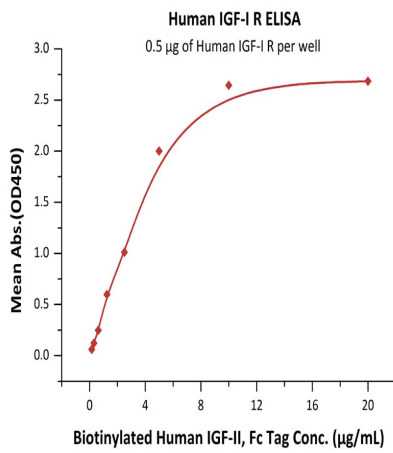
Cell membrane.

Images



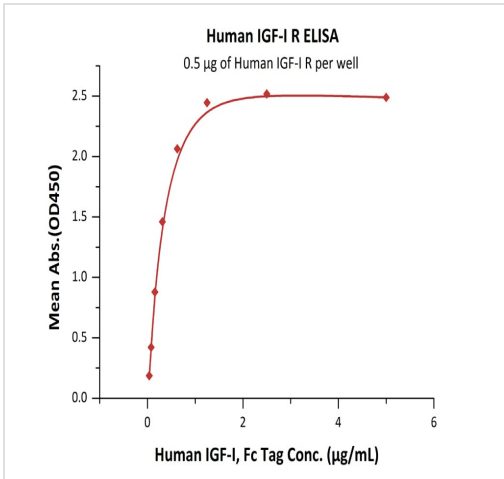
SDS-PAGE - Recombinant human IGF1 Receptor protein (ab155622)

Human IGF-I R on SDS-PAGE under reducing (R) condition. The gel was stained overnight with Coomassie Blue. The purity of the protein is greater than 90%.



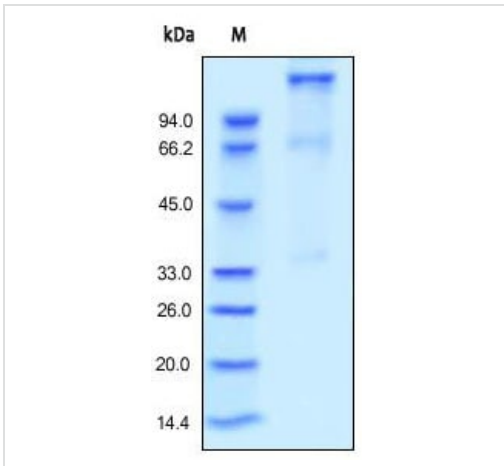
Functional Studies - Recombinant human IGF1 Receptor protein (ab155622)

Immobilized Human IGF-I R at 5 µg/mL (100 µL/well) can bind Biotinylated Human IGF-II, Fc Tag with a linear range of 0.156-5 µg/mL.



Immobilized Human IGF-1 R at 5 µg/mL (100 µL/well) can bind Human IGF-1, Fc Tag with a linear range of 0.04-0.313 µg/mL.

Functional Studies - Recombinant human IGF1 Receptor protein (ab155622)



SDS-PAGE analysis of reduced ab155622 stained overnight with Coomassie Blue.

SDS-PAGE - Recombinant human IGF1 Receptor protein (ab155622)

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