

Recombinant Human Insulin-like growth factor 1 receptor(IGF1R),partial

Catalog No: #AP70428

Package Size: #AP70428-1 20ug #AP70428-2 100ug #AP70428-3 1mg

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Description

Product Name	Recombinant Human Insulin-like growth factor 1 receptor(IGF1R),partial
Host Species	E.coli
Purification	Greater than 90% as determined by SDS-PAGE.
Immunogen Description	Expression Region:763-931aaSequence Info:Partial
Other Names	Insulin-like growth factor I receptor ;IGF-I receptor; CD221
Accession No.	P08069
Calculated MW	46.4 kDa
Tag Info	N-terminal GST-tagged
Target Sequence	YNITDPEELETEYPPFFESRVDNKERTVISNLRPFTLYRIDIHSCNHEAEKLGCSASNFFVFARTMPAEGADDIPGP VTWEPRPENSIFLKWPEPENPNGLILMYEIKYGSQVEDQRECVRQEYRKYGAKLNRLNPGNYTARIQATSL SGNGSWTDPVFFYVQAKTGYE
Formulation	Tris-based buffer50% glycerol
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C,-80°C. The shelf life of lyophilized form is 12 months at -20°C,-80°C.Notes:Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.

Background

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 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 85KDA 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 IGFIR 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.

References

Discovery of 2,4-bis-arylamino-1,3-pyrimidines as insulin-like growth factor-1 receptor (IGF-1R) inhibitors. Buchanan J.L., Newcomb J.R., Carney D.P., Chaffee S.C., Chai L., Cupples R., Epstein L.F., Gallant P., Gu Y., Harmange J.C., Hodge K., Houk B.E., Huang X., Jona J., Joseph S., Jun H.T., Kumar R., Li C., Lu J., Menges T., Morrison M.J., Novak P.M., van der Plas S., Radinsky R., Rose P.E., Sawant S., Sun J.R., Surapaneni S., Turci S.M., Xu K., Yanez E., Zhao H., Zhu X. *Bioorg. Med. Chem. Lett.* 21:2394-2399(2011) Research Topic: Signal Transduction

Note: This product is for in vitro research use only and is not intended for use in humans or animals.