

GFR Alpha-1/GFRA1 Protein, Rat, Recombinant (His)

General Information

Synonyms:	GDNF family receptor α 1; GFR α -1/GFRA1; GDNF family receptor alpha 1
Protein Construction:	A DNA sequence encoding the rat GFRA1 (Q62997-1) (Met 1-Leu 445) was expressed, fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Asp 25
Species:	Rat
Expression Host:	HEK293 Cells
Accession:	Q62997-1
Molecular Weight:	48 kDa (predicted); 58-65 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Measured in a cell proliferation assay using SH-SY5Y human neuroblastoma cells. The ED50 for this effect is typically 0.2-1 μ g/mL in the presence of 40 ng/mL Recombinant Rat GDNF.
Purity:	> 97 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/ μ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μ m 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.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Glial cell line derived neurotrophic factor (GDNF) Family Receptor Alpha 1 (GFRA1) is a member of the GDNF receptor family. It is a glycosylphosphatidylinositol (GPI)-linked cell surface receptor for both GDNF and NTN, and mediates activation of the RET tyrosine kinase receptor. GFRA1 is a potent survival factor for central and peripheral neurons, and is essential for the development of kidneys and the enteric nervous system. Glial cell line-derived neurotrophic factor (GDNF) and neurturin (NTN) are its binding ligand which are two structurally related, potent

neurotrophic factors that play key roles in the control of neuron survival and differentiation. GDNF promotes the formation of a physical complex between GFRA/GDNFR α and the orphan tyrosin kinase receptor Ret, thereby inducing its tyrosine phosphorylation. The RET is a receptor tyrosine kinase representing the signal-transducing molecule of a multisubunit surface receptor complex for the GDNF, in which GFRA / GDNFR α acts as the ligand-binding component. GDNF, a distantly related member of the transforming growth factor- β (TGF- β) superfamily, and its receptor components: GFRA1, Ret and neural cell adhesion molecule (NCAM) have been recently reported to be expressed in the testis and to be involved in the proliferation regulation of immature Sertoli cells.

Reference

Jing S, et al. (1997) GFR α -2 and GFR α -3 are two new receptors for ligands of the GDNF family. J Biol Chem. 272(52): 33111-7.

Jing S, et al. (1996) GDNF-induced activation of the ret protein tyrosine kinase is mediated by GDNFR- α , a novel receptor for GDNF. Cell. 85(7):1113-24.

Treanor JJ, et al. (1996) Characterization of a multicomponent receptor for GDNF. Nature. 382(6586): 80-3.

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