

DESCRIPTION

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| Source | Human embryonic kidney cell, HEK293-derived human GFR alpha-1/GDNF R alpha-1 protein Ala19-Ser429, with a C-terminal 6-His tag Accession # P56159.2 |
| N-terminal Sequence Analysis | Ala19 |
| Predicted Molecular Mass | 46 kDa |

SPECIFICATIONS

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| SDS-PAGE | 51-64 kDa, under reducing conditions. |
| Activity | Measured by its binding ability in a functional ELISA. Recombinant Human GFR α -1/GDNF R α -1 His-tag (Catalog # 11398-GR) binds Recombinant Human GDNF Protein (Catalog # 212-GD/CF) with an ED ₅₀ of 26.0-260 ng/mL. |
| Endotoxin Level | <0.10 EU per 1 μ g of the protein by the LAL method. |
| Purity | >95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining. |
| Formulation | Lyophilized from a 0.2 μ m filtered solution in PBS with Trehalose. See Certificate of Analysis for details. |

PREPARATION AND STORAGE

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| Reconstitution | Reconstitute at 500 μ g/mL in PBS. |
| Shipping | The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. |
| Stability & Storage | Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution. |

DATA

Binding Activity

Recombinant Human GFR α -1/GDNF R α -1 His-tag Protein Binding Activity.
Recombinant Human GFR α -1/GDNF R α -1 His-tag Protein (Catalog # 11398-GR) binds Recombinant Human GDNF Protein (Catalog # 212-GD/CF) with an ED₅₀ of 26.0-260 ng/mL.

SDS-PAGE

Recombinant Human GFR α -1/GDNF R α -1 His-tag Protein SDS-PAGE. 2 μ g/lane of Recombinant Human GFR α -1/GDNF R α -1 His-tag Protein (Catalog # 11398-GR) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 51-64 kDa, under reducing conditions.

BACKGROUND

Glial cell line-derived growth factor (GDNF), neurturin (NTN), artemin and persephin are distant members of the TGF- β superfamily. They function as neurotrophic factors for a variety of neuronal populations in the central and peripheral nervous systems. The bioactivities of GDNF and NTN are mediated through a receptor complex composed of the non ligand-binding signaling subunit (c-Ret receptor tyrosine kinase) and either of two ligand binding subunits [GDNF receptor α -1 (GFR α -1) or GFR α -2]. GFR α -1 and -2 are members of a family of at least four cysteine-rich glycosyl-phosphatidylinositol (GPI)-linked cell surface proteins that share conserved placements of many of their cysteine residues. Binding of GDNF to membrane-associated GFR α -1 or GFR α -2 initiates the association with and activation of the Ret tyrosine kinase. Soluble GFR α s released enzymatically from the cell surface-associated protein with phosphatidylinositol phospholipase C, as well as recombinantly produced soluble GFR α -1, can also bind with high-affinity to GDNF and trigger the activation of Ret tyrosine kinase. Human GFR α -1 cDNA encodes a 465 amino acid (aa) residue protein with an N-terminal 24 aa residue hydrophobic signal peptide. Like other GPI-linked proteins, human GFR α -1 has a C-terminal hydrophobic region which is preceded by a three aa residue (ASS) GPI-binding site. Human GFR α -1 shares 93% aa identity with rat GFR α -1. The expression of the various GFR α s are differentially regulated in the central and peripheral nervous system, suggesting complementary roles for the GFR α s in mediating the activities of the GDNF family of neurotrophic factors.

References:

1. Thompson, J. *et al.* (1998) Mol. Cell Neurosci. **11**:117.
2. Trupp, M. *et al.* (1998) Mol. Cell Neurosci. **11**:47.
3. Baloh, R.H. *et al.* (1998) Proc. Natl. Acad. Sci. USA **95**:5801.