

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived human GDNF protein Arg109-Ile211 Accession # P39905
N-terminal Sequence Analysis	Arg109
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	11.6 kDa (monomer)

SPECIFICATIONS

Activity	Measured in a cell proliferation assay using SH-SY5Y human neuroblastoma cells. The ED ₅₀ for this effect is 2-12 ng/mL in the presence of Recombinant Human GFR α -1/GDNF R α -1 Fc Chimera (Catalog # 714-GR). The specific activity of recombinant human GDNF is approximately 3.1 x 10 ³ units/ μ g, which is calibrated against recombinant human GDNF Reference Standard (NIBSC code: 09/266). Measured by its binding ability in a functional ELISA. Immobilized Recombinant Human GFR α -1/GDNF R α -1 Fc Chimera (Catalog # 714-GR) at 1 μ g/mL can bind Recombinant Human GDNF with an apparent K _d < 1 nM.
Endotoxin Level	<1.0 EU per 1 μ g of the protein by the LAL method.
Purity	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 μ m filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 μ g/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.
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

Bioactivity

Recombinant Human GDNF (ng/mL)	R&D Systems Mean RFU	Top Competitor Mean RFU
10 ⁻²	~4500	~4500
10 ⁻¹	~4500	~4500
10 ⁰	~5000	~4800
10 ¹	~6500	~5000
10 ²	~7500	~6500

Recombinant Human GDNF (Catalog # 212-GD) induces SH-SY5Y human neuroblastoma cell proliferation in the presence of Recombinant Human GFR α -1 Fc Chimera (Catalog # 714-GR). The activity is approximately 9-fold greater than the top competitor's GDNF.

SDS-PAGE

1 μ g/lane of Recombinant Human GDNF was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing single bands at 17 kDa and 34 kDa, respectively.

BACKGROUND

Glial Cell Line-derived Neurotrophic Factor (GDNF) is a neurotrophic factor that has been shown to promote the survival of various neuronal subpopulations in both the central as well as the peripheral nervous systems at different stages of their development. Neuronal subpopulations that have been shown to be affected by GDNF include motoneurons, midbrain dopaminergic neurons, Purkinje cells and sympathetic neurons.

Native GDNF, a disulfide-linked homodimeric glycoprotein, is a novel member of the TGF- β superfamily. Human GDNF cDNA encodes a 211 amino acid residue prepropeptide that is processed to yield a dimeric protein. Mature human GDNF was predicted to contain two 134 amino acid residue subunits. NS0 expressed mature human GDNF lacks 31 residues from the amino-terminus of the predicted sequence. This glycosylated recombinant mature human GDNF still contains the seven conserved Cys residues found in all members of the TGF- β superfamily and is biologically active. The GDNF sequence contains two potential glycosylation sites and insect cell-expressed recombinant rat GDNF proteins are glycosylated. Mature rat and human GDNF exhibit approximately 93% amino acid sequence identity and show considerable species cross-reactivity. Cells known to express GDNF include Sertoli cells, type 1 astrocytes, Schwann cells, neurons, pinealocytes and skeletal muscle cells.