Recombinant Human GDNF
Catalog Number: 212-GD

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 ED50 for this effect is 2-12 ng/mL in the presence of Recombinant Human GFRα-1/GDNF Rα-1 Fc Chimera (Catalog # 714-GR). The specific activity of recombinant human GDNF is approximately 3.1 x 10^3 units/μg, 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 GFRα-1/GDNF Rα-1 Fc Chimera (Catalog # 714-GR) at 1 μg/mL can bind Recombinant Human GDNF with an apparent Kd <1 nM.

Endotoxin Level
<1.0 EU per 1 μg 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 μm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution
Reconstitute at 100 μg/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.
• 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 (Catalog # 212-GD) induces SH-SY5Y human neuroblastoma cell proliferation in the presence of Recombinant Human GFRα-1 Fc Chimera (Catalog # 714-GR). The activity is approximately 9-fold greater than the top competitor's GDNF.

SDS-PAGE
1 μg/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.