DESCRIPTION

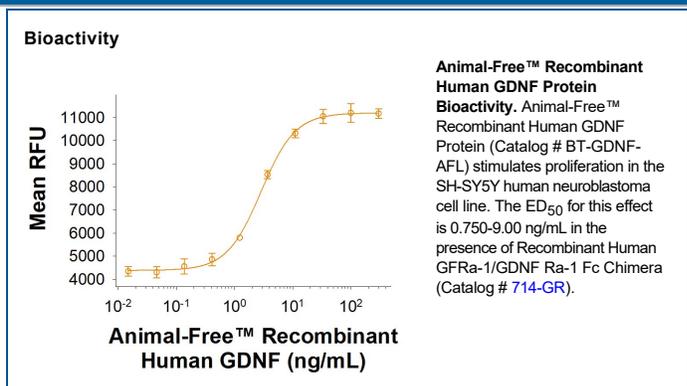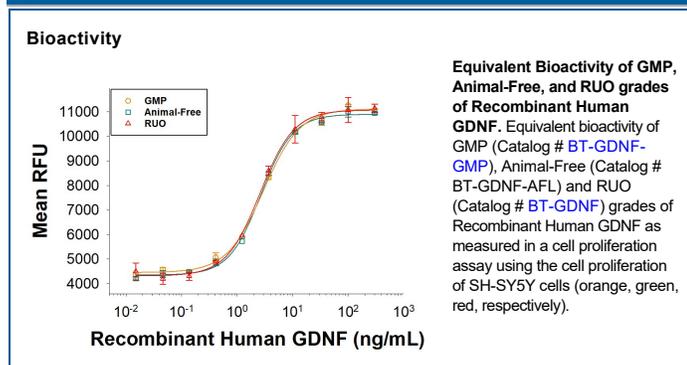|	
Source	*E. coli*-derived human GDNF protein Gly113-Ile211 Accession # NP_000505.1 Produced using non-animal reagents in an animal-free laboratory.
N-terminal Sequence Analysis	Gly113 & Met
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	16 kDa

SPECIFICATIONS

SDS-PAGE	8 kDa, under reducing conditions.
Activity	Measured in a cell proliferation assay using SH-SY5Y human neuroblastoma cells. The ED_{50} for this effect is 0.750-9.00 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 >5.0 x 10^5 units/mg, which is calibrated against the human GDNF Reference Standard (NIBSC code: 09/266).
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE with quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in water.
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

Equivalent Bioactivity of GMP, Animal-Free, and RUO grades of Recombinant Human GDNF. Equivalent bioactivity of GMP (Catalog # BT-GDNF-GMP), Animal-Free (Catalog # BT-GDNF-AFL) and RUO (Catalog # BT-GDNF) grades of Recombinant Human GDNF as measured in a cell proliferation assay using the cell proliferation of SH-SY5Y cells (orange, green, red, respectively).

Bioactivity

Animal-Free™ Recombinant Human GDNF Protein Bioactivity. Animal-Free™ Recombinant Human GDNF Protein (Catalog # BT-GDNF-AFL) stimulates proliferation in the SH-SY5Y human neuroblastoma cell line. The ED_{50} for this effect is 0.750-9.00 ng/mL in the presence of Recombinant Human GFRa-1/GDNF Ra-1 Fc Chimera (Catalog # 714-GR).

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.

MANUFACTURING SPECIFICATIONS

Animal-Free Manufacturing Conditions

Our dedicated controlled-access animal-free laboratories ensure that at no point in production are the products exposed to potential contamination by animal components or byproducts. Every stage of manufacturing is conducted in compliance with R&D Systems' stringent Standard Operating Procedures (SOPs). Production and purification procedures use equipment and media that are confirmed animal-free.

Production

- All molecular biology procedures use animal-free media and dedicated labware.
- Dedicated fermentors are utilized in committed animal-free areas.

Purification

- Protein purification columns are animal-free.
- Bulk proteins are filtered using animal-free filters.
- Purified proteins are stored in animal-free containers in a dedicated cold storage room.

Quality Assurance

- Low Endotoxin Level.
- No impairment of biological activity.
- High quality product obtained under stringent conditions.
- For *ex vivo* research or bioproduction, **additional documentation** can be provided.

Please read our complete Animal-Free Statement