

GDNF Protein, Rat, Recombinant (His)

General Information

Synonyms:	glial cell derived neurotrophic factor
Protein Construction:	A DNA sequence encoding the mature form of rat GDNF (Q07731-1) (Ser78-Ile211) was expressed, with a polyhistidine tag at the N-terminus. Predicted N terminal: His
Species:	Rat
Expression Host:	Baculovirus Insect Cells
Accession:	Q07731-1
Molecular Weight:	17.1 kDa (predicted); 20 kDa (reducing conditions)

QC Testing

Biological Activity:	<ol style="list-style-type: none">1. Measured in a cell proliferation assay using SH-SY5Y human neuroblastoma cells. The ED50 for this effect is typically 10-50 ng/mL in the presence of Recombinant Rat GFR alpha-1/GDNF R alpha-1 His Chimera.2. Immobilized rat His-GDNF (78-211) at 10 µg/ml (100 µl/well) can bind rat GFRA1-Fc, The EC50 of rat GFRA1-Fc is 20-46.6 ng/ml.
Purity:	> 95 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/µg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing 20 mM Tris, 500 mM NaCl, 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:
Reconstituted with sterile deionized water to 0.31 mg/mL. Reconstitution conditions may vary depending on the lot.

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) is an important member of the GDNF family of ligands (GFL). The GDNF family of ligands is comprised by four neurotrophic factors: glial cell line-derived neurotrophic factor

(GDNF), neurturin (NRTN), artemin (ARTN), and persephin (PSPN). It has been found that GFLs play a role in a number of biological processes including cell survival, neurite outgrowth, cell differentiation and cell migration. As the founding member, GDNF plays a key role in the promotion of the survival of dopaminergic neurons. GDNF is a highly conserved neurotrophic factor. The recombinant form of this protein also promotes the survival and differentiation of dopaminergic neurons in culture, and was able to prevent apoptosis of motor neurons induced by axotomy. GDNF also regulates kidney development and spermatogenesis, and it affects alcohol consumption. It has been shown that GDNF results in two Parkinson's disease clinical trial and in a number of animal trials. It has been taken as a potent survival factor for central motoneurons.

Reference

- Oppenheim RW, et al. (1995) Developing motor neurons rescued from programmed and axotomy-induced cell death by GDNF. *Nature*. 373 (6512): 344-6.
- Tomac A, et al. (1995) Protection and repair of the nigrostriatal dopaminergic system by GDNF in vivo. *Nature*. 373 (6512): 335-9.
- Schindelhauer D, et al. (1996) The gene coding for glial cell line derived neurotrophic factor (GDNF) maps to chromosome 5p12-p13.1. *Genomics*. 28 (3): 605-7.
- Carnicella S, et al. (2008) GDNF is a fast-acting potent inhibitor of alcohol consumption and relapse. *Proc Natl Acad Sci* . 105 (23): 8114-9.

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