

# PRODUCT INFORMATION



## GDNF (rat, recombinant)

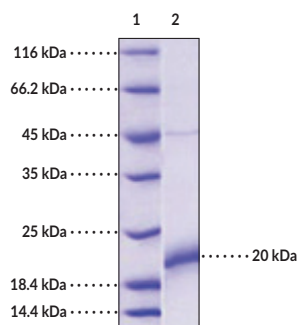
Item No. 43697

### Overview and Properties

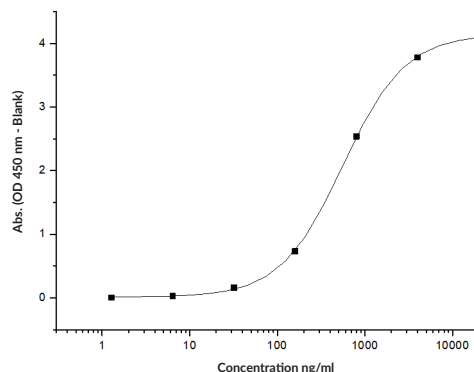
**Synonyms:** Astrocyte-derived Trophic Factor, ATF, Glial Cell Line-derived Neurotrophic Factor  
**Source:** Active recombinant rat N-terminal His-tagged GDNF expressed in insect cells  
**Amino Acids:** 78-211  
**Uniprot No.:** Q07731  
**Molecular Weight:** 17.1 kDa  
**Storage:** -80°C (as supplied)  
**Stability:** ≥1 year  
**Purity:** ≥95% estimated by SDS-PAGE  
**Supplied in:** Lyophilized from sterile 20 mM Tris, 500 mM sodium chloride, 10% glycerol, pH 7.4  
**Endotoxin Testing:** <1.0 EU/μg, determined by the LAL endotoxin assay  
**Bioactivity:** See figures for details

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

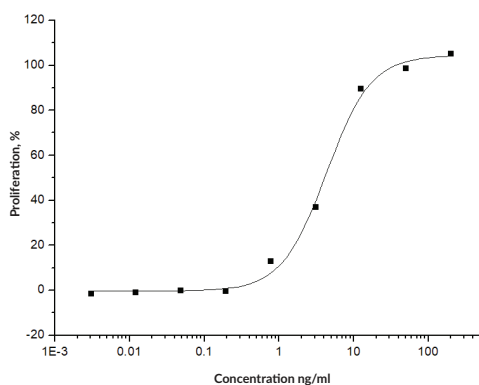
### Images



Lane 1: MW Markers  
Lane 2: GDNF  
SDS-PAGE Analysis of GDNF (rat, recombinant).



Immobilized GDNF (rat, recombinant) at 2 μg/ml (100 μl/well) can bind GFRA1/GFR α1 (rat, recombinant; Fc Tag), the EC<sub>50</sub> is 280-840 ng/ml.



Measured in a cell proliferation assay using SH-SY5Y human neuroblastoma cells. The ED<sub>50</sub> for this effect is typically 1.5-15 ng/ml in the presence of recombinant human GFR α1/GDNF R α1 His chimera.

**WARNING**  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

**SAFETY DATA**  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

**WARRANTY AND LIMITATION OF REMEDY**  
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# PRODUCT INFORMATION



## Description

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Glial cell line-derived neurotrophic factor (GDNF) is a neurotrophic factor and member of the TGF- $\beta$  superfamily.<sup>1</sup> It is produced as a preproprotein with the signal peptide cleaved upon secretion and the protein activated after further cleavage. It is expressed in the CNS, with high levels in the caudate nucleus of the striatum, and in the PNS, including in the mesenchyme, kidney, and gastrointestinal tract.<sup>2,3</sup> GDNF forms homodimers and binds to its coreceptor, GDNF family receptor  $\alpha 1$  (GFR $\alpha 1$ ), and, together, they bind the tyrosine kinase RET in a *cis* or *trans* configuration and activate ERK1/2 or PI3K/Akt signaling pathways, respectively.<sup>1,4</sup> Through these pathways, GDNF mediates cell survival and cytokine expression to promote neuronal survival and neuroprotection.<sup>5</sup> GDNF is involved in dopaminergic neuron development and differentiation, enteric neuron precursor migration, kidney development, and spermatogonia differentiation.<sup>1,5</sup> Exogenous GDNF reduces alcohol drinking in rhesus monkeys trained to chronically drink alcohol, and serum levels of GDNF are reduced in patients dependent on alcohol.<sup>6,7</sup> Mutations in *GDNF*, alone or in combination with other gene mutations, are a cause of Hirschsprung disease, a neural crest disease characterized by distal colonic aganglionosis.<sup>8</sup> Cayman's GDNF (rat, recombinant) protein can be used for cell-based assays. This protein consists of 150 amino acids and has a calculated molecular weight of 17.1 kDa. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 20 kDa.

## References

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