

**GDNF proDomain Protein (WT-human)**  
**Human Glial-Derived Neurotrophic Factor proDomain (WT-human), Synthetic**  
**Catalog # PG10039**

**Specification**

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**GDNF proDomain Protein (WT-human) - Product Information**

**GDNF proDomain Protein (WT-human) - Additional Information**

**Storage**  
-20°C

**Precautions**

GDNF proDomain Protein (WT-human) is for research use only and not for use in diagnostic or therapeutic procedures.

**GDNF proDomain Protein (WT-human) - Protocols**

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

**GDNF proDomain Protein (WT-human) - Images**

**GDNF proDomain Protein (WT-human) - Background**

Glial-Derived Neurotrophic Factor (GDNF) is a member of the TGF- $\beta$  superfamily. GDNF signals through a multi-component receptor system, composed of a RET protooncogene and one of the four  $\alpha 1$ - $\alpha 4$  receptors<sup>1</sup>. GDNF promotes survival of various neuronal cells, including motoneurons<sup>2,3</sup>, Purkinje cells and sympathetic neurons<sup>4</sup>. In embryonic midbrain cultures, GDNF promotes the survival and morphological differentiation of dopaminergic neurons and increases their high-affinity dopamine uptake<sup>5</sup>. Cells that express GDNF include Sertoli cells, type 1 astrocytes, Schwann cells<sup>6</sup>, neurons, pinealocytes, and skeletal muscle cells<sup>7</sup>. In vivo, following transection of facial motor neuron axons, locally applied GDNF has been shown to rescue virtually all damaged neurons from death<sup>8</sup>. GDNF may be of clinical relevance in the treatment of Parkinson's disease that is characterized by progressive degeneration of midbrain dopaminergic neurons<sup>9,10</sup>. Recently, it has been hypothesized that functional, carboxy-terminally amidated peptides are processed from the GDNF precursor upon proteolytic cleavage by furin-like endopeptidase<sup>11,12,13</sup>. Those different peptides (a 5-mer and 11-mer) have not been isolated endogenously to date. However, the rat 11-mer sequence (named brain excitatory peptide, BEP) significantly induced synaptic excitability and possessed some dopaminergic activities in vitro (thus named dopamine neuron stimulating peptides, DNSP)<sup>13</sup>. Furthermore, the human 11-mer sequence (named DNSP-11) exhibits

neurotrophic-like properties<sup>13</sup>. Thus, the role of the full proDomain of GDNF, which is a product of proteolytic cleavage of proGDNF, is not clearly understood yet.

#### **GDNF proDomain Protein (WT-human) - References**

1 . Airaksinen, M.S. et al. (2002) Nat. Rev. Neurosci. 3, 383. 2 . Henderson, C.E. et al. (1994) Science 266, 1062. 3 . Houenou, L.J. et al. (1996) Cell. Tissue Res. 286, 219. 4 . Kobayashi, M. et al. (2000) Neuroreport 11, 2541. 5 . Tomac, A. et al. (1995) Nature 373, 335. 6 . Zhou, F.Q. et al. (2003) Cell 113, 814. 7 . Lin, L.F. et al. (1993) Science 260, 1130. 8 . Matheson, C.R. et al. (1997) Neuroreport 8, 1739. 9 . Brundin, P. (2002) Brain 125, 2149. 10 . Grondin, R. et al. (1998) J. Neurol. 245, P35. 11 . Bradley, L.H. et al. (2010) PLoS ONE 5, e9752. 12 . Immonen, T. et al. (2008) Exp. Neurol. 210, 793. 13 . Kelps, K.A. et al. (2011) Neuropeptides 45, 213.