

## Product datasheet for **TA328657**

### GDNF Rabbit Polyclonal Antibody

#### Product data:

Product Type:	Primary Antibodies
Applications:	IF, IHC, WB
Recommended Dilution:	WB: 1:200-1:2000; IHC: 1:100-1:3000
Reactivity:	Human, Rat
Host:	Rabbit
Clonality:	Polyclonal
Immunogen:	Peptide (C)DDNLVYHILRKHSKR, corresponding to amino acid residues 192-207 of human GDNF (precursor). C-terminus of the mature GDNF.
Formulation:	Lyophilized. Concentration before lyophilization ~0.8mg/ml (lot dependent, please refer to CoA along with shipment for actual concentration). Buffer before lyophilization: Phosphate buffered saline (PBS) pH 7.4, 1% BSA, 0.025% NaN <sub>3</sub> .
Reconstitution Method:	Add 50 ul double distilled water (DDW) to the lyophilized powder.
Purification:	Affinity purified on immobilized antigen.
Conjugation:	Unconjugated
Storage:	Store at -20°C as received.
Stability:	Stable for 12 months from date of receipt.
Gene Name:	glial cell derived neurotrophic factor
Database Link:	<a href="#">NP_954701</a> <a href="#">Entrez Gene 25453 Rat</a> <a href="#">Entrez Gene 2668 Human</a> <a href="#">P39905</a>



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**Background:**

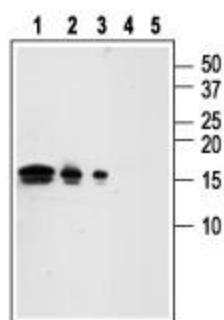
Glial cell-line derived neurotrophic factor (GDNF) is a neurotrophic factor originally identified for its ability to promote the survival of dopaminergic neurons in the midbrain. GDNF is part of the neurotrophic factor family known as GDNF-family ligand (GFL), which includes neurturin (NRTN), artemin (ARTN), and persephin (PSPN). The GFL ligands are structurally related to the transforming growth factor- $\beta$  (TGF- $\beta$ ) protein superfamily and contain seven cysteine residues with the same relative spacing as other members of this family. Typical of neurotrophic factors, GDNF is produced in the form of a precursor, preproGDNF, which is then cleaved during secretion to become proGDNF, and later processed to the mature (homodimeric) GDNF form. The GFLs convey their activity by binding to a multicomponent receptor that includes the RET receptor tyrosine kinase and a glycosyl phosphatidylinositol (GPI)-linked ligand-binding subunit known as GDNF family receptor a (GFRa). Four different GFRa subunits have been identified (GFRa 1-4) that determine the specificity of the GFRa-RET receptor complex. Thus, GFRa1 together with RET make up the high affinity receptor for GDNF. The GDNF and GFRa complex interaction with RET induces activation of the intracellular tyrosine kinase domain of the latter. Phosphorylated RET can then interact with several intracellular signaling cascades including MAP kinase, PI3K and PLC $\gamma$  signaling pathways. Lately a RET-independent signaling pathway for GDNF has been shown to involve binding of GDNF and GFRa to the neural cell adhesion molecule (NCAM). Signaling of GDNF via the NCAM complex stimulates intracellular tyrosine kinases such as Fyn and FAK. GDNF is synthesized and secreted by a wide variety of cell types in the central and peripheral nervous system where it exerts its neurotrophic effects in the development and maintenance of distinct sets of neurons. Accordingly, GDNF knockout mice die shortly after birth, reflecting the central role of GDNF in neurodevelopment.<sup>2</sup> Remarkably, GDNF was found to be an essential morphogen for kidney formation as well as to have a role in spermatogenesis.

**Synonyms:**

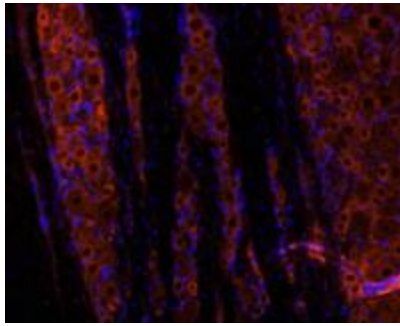
ATF; ATF1; ATF2; HFB1-GDNF; HSCR3

**Protein Families:**

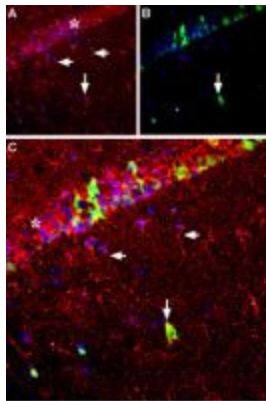
Druggable Genome, Secreted Protein, Transmembrane

**Product images:**

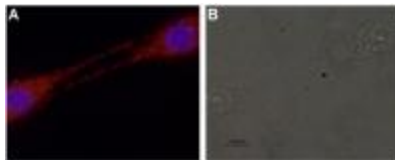
Western blot analysis of recombinant human GDNF (hGDNF): Lanes 1, 4: 50 ng hGDNF. Lanes 2, 5: 10 ng hGDNF. Lanes 3, 4 ng hGDNF. Lanes 1-3: Anti-GDNF antibody, (1:1000). Lanes 4-5: Anti-GDNF antibody preincubated with the control peptide antigen.



Expression of GDNF in rat dorsal root ganglion (DRG). Immunohistochemical staining of rat DRG longitudinal frozen section using Anti-GDNF antibody, (1:50), followed by Alexa 555-conjugated goat anti-rabbit antibody (red staining). Hoechst 33342 (blue) was used as a counterstain. GDNF staining is specific for neurons. Note that Schwann cells as well as satellite glial cells are both negative.



Expression of GDNF in rat hippocampus. Immunohistochemical staining of rat hippocampus frozen sections with Anti-GDNF antibody, (1:100), (red). A. GDNF staining is apparent in the pyramidal layer (asterisk), in astrocytic fibers (horizontal arrows) and in some interneurons (vertical arrow). B. Calbindin D28k (green) appears in a subset of cells in the pyramidal layer. C. Merge of GDNF and calbindin demonstrates some co-localization in neurons. DAPI is used as the counterstain (blue).



Expression of GDNF in rat C6 glioma cells. Immunocytochemical staining of GDNF in rat C6 glioma cells. A. Paraformaldehyde-fixed and permeabilized rat C6 glioma cells were stained with Anti-GDNF antibody, (1:200) followed by goat anti-rabbit-AlexaFluor-555 secondary antibody (red). Nuclei were visualized with the cell-permeable dye Hoechst 33342 (blue). B. Live view of the same field as in (A).