

## Product Contents

### Human Glial Cell-Line Derived Neurotrophic Factor (rhGDNF):

Part No.	Size
G278A	5µg

**Description:** Human Glial Cell-Line Derived Neurotrophic Factor (rhGDNF) is a 30kDa homodimer consisting of two disulfide-linked, 134-amino acid subunits. rhGDNF is produced from recombinant DNA expressed in *E. coli*.

**Rehydration:** The dried rhGDNF is soluble in water and most aqueous buffers. Reconstitute in water to a final concentration of 0.1mg/ml. This solution can be diluted into other buffered solutions or stored at -20°C for up to three months.

**Storage Conditions:** Store desiccated at -20°C. See the expiration date on the product information label. Store reconstituted rhGDNF in aliquots at -20°C, where it is stable for three months. Avoid multiple freeze-thaw cycles and exposure to frequent temperature changes.

**Usage Note:** The actual weight of dried factor is not confirmed after the material has been dried down and may vary from the weight indicated on the product label. If the exact weight of factor to be used is important, it is recommended that the amount of material in the vial be assayed before use.

## Quality Control Assays

**Identity:** The identity of rhGDNF is verified by ELISA assay using Anti-Human GDNF pAb (Cat.# G2791) for detection. A multiwell plate is coated with rhGDNF diluted serially from 10µg/ml to 0.01µg/ml; rhGDNF is detected with Anti-Human GDNF pAb at a concentration of 1µg/ml. The half-maximal absorbance under these conditions must occur at an rhGDNF concentration ≤1µg/ml.

Part# 9PIG278

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**Promega**

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## I. Description

Human Glial Cell Line-Derived Neurotrophic Factor (GDNF) is processed from a 211-amino acid precursor protein to form a mature homodimer of two 134-amino acid subunits. GDNF possesses seven cysteine residues and forms three disulfide bonds resulting in a 'cysteine knot' quaternary structure. Discovered by Lin *et al.* in 1993 and shown to be a potent survival factor for dopaminergic neurons (1), GDNF has since been shown to be a potent survival factor for spinal motoneurons (2–4), locus ceruleus noradrenergic neurons (5) and distinct subpopulations of peripheral sensory, sympathetic and parasympathetic neurons (6,7). A surprising finding from studies in GDNF-null mice was that the animals failed to develop kidneys and form the enteric nervous system (8–10).

The receptor complex for GDNF has been elucidated. GDNF interacts with the receptor tyrosine kinase, Ret, formerly an orphan receptor (11–16). Yet GDNF can only bind Ret through a membrane-tethered accessory protein, identified as GDNFR- $\alpha$  (11,12). Since the members of this multicomponent receptor family are growing, new terminology has been proposed, specifically that GDNFR- $\alpha$  be referred to as GFR $\alpha$ -1, for TGF $\beta$ -related neurotrophic factor receptor 1, and other such accessory factors be named accordingly (17). A review of GDNF can be found in references 18 and 19, and a review of the GDNF/neurturin receptor complex can be found in reference 20.

## II. Standard Applications

Use rhGDNF to investigate neuronal physiology. Applications include:

- Examination of the survival of sensory and motor neurons (3) and dopamine neurons (21).
- Investigation of dopamine metabolism (22).
- Protection from dopamine neuron loss (21–23).

## III. Related Products

### E<sub>max</sub><sup>®</sup> ImmunoAssay Systems

Product	Size	Cat.#
BDNF E <sub>max</sub> <sup>®</sup> ImmunoAssay Systems	5 × 96 wells	G7611
	2 × 96 wells	G7610
NGF E <sub>max</sub> <sup>®</sup> ImmunoAssay Systems	5 × 96 wells	G7631
	2 × 96 wells	G7630
NT-3 E <sub>max</sub> <sup>®</sup> ImmunoAssay Systems	5 × 96 wells	G7641
	2 × 96 wells	G7640
GDNF E <sub>max</sub> <sup>®</sup> ImmunoAssay Systems	5 × 96 wells	G7621
	2 × 96 wells	G7620

### Primer Pairs

Product	Size	Cat.#
$\beta$ -Actin Primer Pair	20 reactions	G5740
CNTF Primer Pair	20 reactions	G5770
TrkB Primer Pair	20 reactions	G5790
NT-3 Primer Pair	20 reactions	G6801
p75 Primer Pair	20 reactions	G6861

## Items Available Separately

Product	Size	Cat.#
Anti-Human GDNF pAb	200 $\mu$ g	G2791
Anti-Human NT-3 pAb	200 $\mu$ g	G1651
rhNT-3	5 $\mu$ g	G1501
mNGF, 2.5S	100 $\mu$ g	G5141

Product	Size	Cat.#
mNGF, 7S	100 $\mu$ g	G5151
Anti-NGF mAb	100 $\mu$ g	G1131
Anti-Pan Trk pAb	200 $\mu$ g	G1581
Anti-Trk In pAb	100 $\mu$ g	G1561
Anti-Human p75 pAb	200 $\mu$ g	G3231
Anti-Rat CNTF pAb	200 $\mu$ g	G1631
rhBDNF	5 $\mu$ g	G1491
Anti-Human BDNF pAb	200 $\mu$ g	G1641

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