

## Product Information

### Anti-GFR $\alpha$ -2

produced in rabbit, IgG fraction of antiserum

Catalog Number **G9415**

#### Product Description

Anti-GFR $\alpha$ -2 (GDNFR $\beta$ , RETL2, TrnR2, NTNR $\alpha$ ) is produced in rabbit using a synthetic peptide corresponding to amino acids 377-391 of human GFR $\alpha$ -2 as immunogen.

Anti-GFR $\alpha$ -2 recognizes GFR $\alpha$ -2 by immunoblotting (52 kDa). It reacts with human, mouse and rat GFR $\alpha$ -2. Anti-GFR $\alpha$ -2 may be used for immunoblotting.

The GDNF family comprises glial cell line-derived neurotrophic factor (GDNF) and the related proteins neurturin (NTN), artemin (ART) and persephin (PSP), which form a subgroup of the TGF- $\beta$  superfamily. All four neurotrophic factors provide neuronal cell protection and cell survival. In addition, GDNF and NTN are also responsible for the development and survival of the enteric neurons, and NTN for parasympathetic neurons. GDNF, a mesenchyme-derived signaling molecule, is also responsible for the promotion of ureteric branching in kidney development. NTN, ART, and PSP are also expressed in the developing kidney, and NTN and PSP induce ureteric branching *in vitro*, but their true *in vivo* role in kidney morphogenesis is still unclear. The members of the GDNF family, GDNF, NTN, PSP, and ART have seven conserved cysteine residues with similar spacing. Like the members of the neurotrophin family, the GDNF family belongs structurally to the cysteine knot proteins. All neurotrophins bind to the p75 low-affinity receptor, but their ligand specificity is determined by Trk receptor tyrosine kinases. GDNF, NTN, PSP, and ART mediate their signals via a common receptor tyrosine kinase, Ret, but their ligand specificity is determined by a novel class of glycosylphosphatidylinositol (GPI)-anchored proteins called the GDNF family receptor alpha (GFR $\alpha$ ). GDNF binds preferentially to GFR $\alpha$ -1, NTN to GFR $\alpha$ -2, ART to GFR $\alpha$ -3, and PSP to GFR $\alpha$ -4 as a co-receptor to activate Ret. At early stages of development

GFR $\alpha$ -1 and GFR $\alpha$ -2 are expressed in the oculomotor, facial and spinal accessory, and only GFR $\alpha$ -1 in the trochlear, superior salivatory, trigeminal, hypoglossal and weakly in the dorsal motor nucleus of the vagus and the ambiguus nucleus. The abducens nucleus is negative for both GFR $\alpha$ -1 and GFR $\alpha$ -2. GFR $\alpha$ -3 was expressed only in the superior salivatory nucleus. GFR $\alpha$ -3 is expressed in developing and adult ganglia of the PNS but was not detected in the CNS.

#### Reagents

Supplied as 1 mg/ml of IgG fraction of antiserum in phosphate buffered saline containing 0.02% sodium azide.

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### Storage/Stability

For continuous use, store at 2-8°C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

#### Product Profile

Immunoblotting: recommended working dilution is 1-2  $\mu$ g/mL using total HeLa cell lysates.

**Note:** In order to obtain best results and assay sensitivities of different techniques and preparations, we recommend determining optimal working dilutions by titration test.

## References

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6. Jing, S., et al., GFRalpha-2 and GFRalpha-3 are two new receptors for ligands of the GDNF family. *J. Biol. Chem.*, **272**, 33111-33117 (1997).
7. Soler, R.M., et al., Receptors of the glial cell line-derived neurotrophic factor family of neurotrophic factors signal cell survival through the phosphatidylinositol 3-kinase pathway in spinal cord motoneurons. *J. Neurosci.*, **19**, 9160-9169 (1999).
8. Mikaels, A., et al., A dynamic regulation of GDNF-family receptors correlates with a specific trophic dependency of cranial motor neuron subpopulations during development. *Eur. J. Neurosci.*, **12**, 446-456 (2000).

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