Rat GFRα-1/GDNF Rα-1 Antibody

Antigen Affinity-purified Polyclonal Goat IgG
Catalog Number: AF560

DESCRIPTION

Species Reactivity	Rat
Specificity	Detects rat GFRα-1/GDNF Rα-1 in direct ELISAs and Western blots. In direct ELISAs, approximately 20% cross-reactivity with recombinant human GFRα-1 is observed and less than 1% cross-reactivity with recombinant mouse GFRα-2 is observed.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	Mouse myeloma cell line NS0-derived recombinant rat GFRα-1/GDNF Rα-1 Asp25-Leu445 Accession # Q62997
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 μm filtered solution in PBS.

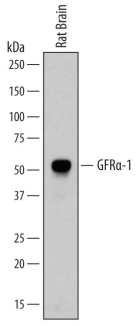
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Western Blot	0.2 µg/mL	See Below
Immunohistochemistry	5-15 µg/mL	See Below
Blockade of Receptor-ligand Interaction	In a functional ELISA, 4-10 µg/mL of this antibody will block 50% of the binding of 4 ng/mL of Recombinant Human GDNF (Catalog # 212-GD) to immobilized Recombinant Rat GFRα-1 Fc Chimera (Catalog # 560-GR) coated at 0.5 µg/mL (100 µL/well).	

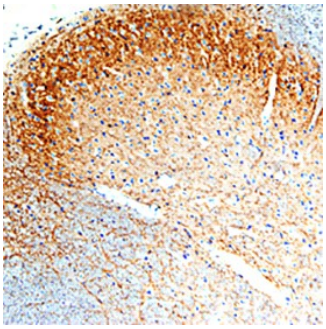
DATA

Western Blot



Detection of Rat GFRα-1/GDNF Rα-1 by Western Blot. Western blot shows lysates of rat brain tissue. PVDF membrane was probed with 0.2 µg/mL of Goat Anti-Rat GFRα-1/GDNF Rα-1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF560) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF109). A specific band was detected for GFRα-1/GDNF Rα-1 at approximately 52 kDa (as indicated). This experiment was conducted under non-reducing conditions and using Immunoblot Buffer Group 1.

Immunohistochemistry



GFRα-1/GDNF Rα-1 in Rat Spinal Cord. GFRα-1/GDNF Rα-1 was detected in perfusion fixed frozen sections of rat spinal cord using Goat Anti-Rat GFRα-1/GDNF Rα-1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF560) at 15 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Goat HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). Specific staining was localized to spinal cord dorsal horn. View our protocol for Chromogenic IHC Staining of Frozen Tissue Sections.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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BACKGROUND

Glial cell line-derived growth factor (GDNF), neurturin (NTN) and persephin, distant members of the TGF-β superfamily, are neurotrophic factors for a variety of neuronal populations in the central and peripheral nervous systems. The bioactivities of GDNF and NTN are mediated through a receptor complex composed of the non ligand-binding signaling subunit (c-Ret receptor tyrosine kinase) and either of two ligand binding subunits (GDNF receptor α- (GFRα-1) or GFRα-2). GFRα-1 and -2 are members of a family of at least four cysteine-rich glycosyl-phosphatidylinositol (GPI)-linked cell surface proteins that share conserved placements of many of their cysteine residues. Binding of GDNF to membrane-associated GFRα-1 or GFRα-2 initiates the association with and activation of the Ret tyrosine kinase. Soluble GFRαs released enzymatically from the cell surface-associated protein with phosphatidylinositol phospholipase C, as well as recombinantly produced soluble GFRα-1, can also bind with high-affinity to GDNF and trigger the activation of Ret tyrosine kinase. Rat GFRα-1 cDNA encodes a 468 amino acid (aa) residue protein with an N-terminal 24 aa residue hydrophobic signal peptide. Like other GPI-linked proteins, rat GFRα-1 has a C-terminal hydrophobic region which is preceded by a three aa residue (ASS) GPI-binding site. Human GFRα-1 shares 93% amino acid identity with rat GFRα-1. The expression of the various GFRαs are differentially regulated in the central and peripheral nervous system, suggesting complementary roles for the GFRαs in mediating the activities of the GDNF family of neurotrophic factors.

References:

1. Thompson, J. *et al.* (1998) Mol. Cell Neurosci. **11:**117.
2. Trupp, M. *et al.* (1998) Mol. Cell Neurosci. **11:**47.
3. Baloh, R.H. *et al.* (1998) Proc. Natl. Acad. Sci. USA **95:**5801.

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