Human NRG1-β1/HRG1-β1 EGF Domain Antibody

Antigen Affinity-purified Polyclonal Goat IgG
Catalog Number: AF-396-NA

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human NRG1-β1/HRG1-β1 EGF Domain in direct ELISAs and Western blots. In Western blots (reducing conditions), approximately 100% cross-reactivity with recombinant human HRG-α is observed. In direct ELISAs, approximately 5% cross-reactivity with recombinant human HRG-α is observed.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	*E. coli*-derived recombinant human NRG1-β1/HRG1-β1 EGF Domain Thr176-Lys246 Accession # NP_039250
Endotoxin Level	<0.10 EU per 1 µg of the antibody by the LAL method.
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 as a 0.2 µm filtered solution in PBS.

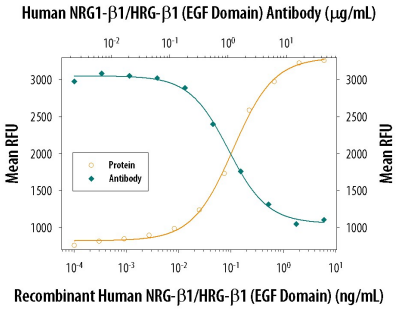
APPLICATIONS

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	0.1 µg/mL	Recombinant Human NRG1-β1/HRG1-β1 EGF Domain (Catalog # 396-HB)
Immunohistochemistry	5-15 µg/mL	See Below
Neutralization	Measured by its ability to neutralize NRG1-β1/HRG1-β1-induced proliferation in the MCF-7 human breast cancer cell line. Karey, K. P. *et al.* (1988) Cancer Research **48**:4083. The Neutralization Dose (ND_{50}) is typically 0.5-2.0 µg/mL in the presence of 0.75 ng/mL Recombinant Human NRG1-β1/HRG1-β1 EGF Domain.	

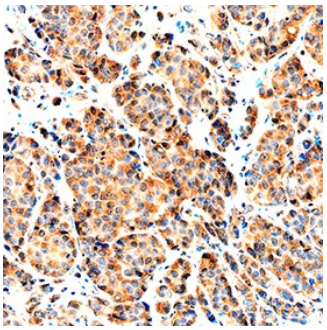
DATA

Neutralization



Cell Proliferation Induced by NRG1-β1/HRG1-β1 and Neutralization by Human NRG1-β1/HRG1-β1 Antibody. Recombinant Human NRG1-β1/HRG1-β1 EGF Domain (Catalog # 396-HB) stimulates proliferation in the MCF-7 human breast cancer cell line in a dose-dependent manner (orange line). Proliferation elicited by Recombinant Human NRG1-β1/HRG1-β1 EGF Domain (0.75 ng/mL) is neutralized (green line) by increasing concentrations of Goat Anti-Human NRG1-β1/HRG1-β1 EGF Domain Antigen Affinity-purified Polyclonal Antibody (Catalog # AF-396-NA). The ND_{50} is typically 0.5-2.0 µg/mL.

Immunohistochemistry



NRG1-β1/HRG1-β1 in Human Breast . NRG1-β1/HRG1-β1 was detected in immersion fixed paraffin-embedded sections of human breast using Goat Anti-Human NRG1-β1/HRG1-β1 EGF Domain Antigen Affinity-purified Polyclonal Antibody (Catalog # AF-396-NA) at 1 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 cytoplasm. View our protocol for Chromogenic IHC Staining of Paraffin-embedded 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

The neuregulin family of structurally related glycoproteins comprises products from four distinct but related genes, *Nrg-1, Nrg-2, Nrg-3, and Nrg-4*. Through alternative splicing or the use of alternative promoters, *Nrg-1* has been shown to encode more than 14 soluble or transmembrane proteins. The extracellular domain of the transmembrane NRG1 isoforms can be proteolytically cleaved to release soluble growth factors. All NRG1 isoforms contain an EGF-like domain (α- or β-splice variant that differ in their C-terminal region) that is required for their direct binding to the ErbB3 or ErbB4 receptor tyrosine kinases. The ErbB3 or ErbB4 subsequently recruits and heterodimerizes with ErbB2, resulting in tyrosine phosphorylation and NRG1 signaling. NRG1 isoforms can be classified into three major subtypes. Type I (Neu Differentiation Factor, NDF; Heregulin, HRG; Acetylcholine Receptor Inducing Activity, ARIA) and type II (Glial Growth Factor, GGF) NRG1s have an immunoglobulin (Ig)-like domain N-terminal to the EGF-like domain. Type I NRG1s differ from type II NRG1s by having a glycosylation-rich domain between the Ig-like and the EGF-like domains. Type III NRG1s (Sensory and Motor neuron-Derived Factor) lacks the Ig-like domain but has a cysteine rich domain (CRD) instead. NRG1 isoforms show distinct spatial and temporal expression patterns. These proteins play important roles during development of both the nervous system and the heart. They have been shown to regulate the selective expression of neurotransmitter receptors in neurons and at the neuromuscular junction, and promote the differentiation and development of Schwann cells from neural crest stem cells. NRG1s have also been shown to be involved in the establishment of the oligodendroglial lineage.

References:

1. Buonanno, A., and Fischbach, G.D. (2001) Curr. Opin. Neurobiol. **11**:287.
2. Adlkofer, K. and Lai, C. (2000) Glia **29**:104.
3. Garratt, A.N. *et al.* (2000) BioEssays **22**:987.

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