

## DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human Neuregulin-1/NRG1 in direct ELISAs and Western blots. In direct ELISAs, no cross-reactivity with the EGF-like domains of recombinant human (rh) NRG1-β1 (aa 176-246) or rhNRG1-α (aa 177-241). Therefore, this antibody recognizes an epitope located within aa 2-176 segment N-terminal to the EGF-like domain. This segment is present in all NRG1-α, β and γ isoforms and in NDF43 and glial growth factor (GGF). It is absent from the NRG1 gene products GGF2 and SMDF.
<b>Source</b>	Monoclonal Mouse IgG <sub>2B</sub> Clone # 147724
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human Neuregulin-1/NRG1 Ser2-Lys246 Accession # AAA58639
<b>Formulation</b>	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

## 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.

	<b>Recommended Concentration</b>	<b>Sample</b>
<b>Western Blot</b>	1 μg/mL	Recombinant Human Neuregulin-1/NRG1 (Catalog # 5898-NR)

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.5 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<p><b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b></p> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month from date of receipt, 2 to 8 °C, reconstituted.</li> <li>● 6 months from date of receipt, -20 to -70 °C, reconstituted.</li> </ul>

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