Recombinant Human NRG1-β1/HRG1-β1 Extracellular Domain

Catalog Number: 377-HB

DESCRIPTION

Source	*E. coli*-derived Ser2-Lys246 Accession # AAA58639
N-terminal Sequence Analysis	Ser2
Predicted Molecular Mass	26.9 kDa

SPECIFICATIONS

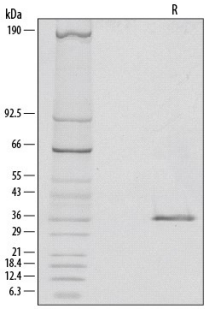
Activity	Measured in a serum-free cell proliferation assay using MCF−7 human breast cancer cells. Karey, K.P. *et al.* (1988) Cancer Research **48**:4083. The ED_{50} for this effect is typically 2.5-12.5 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in Acetonitrile and TFA with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
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. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

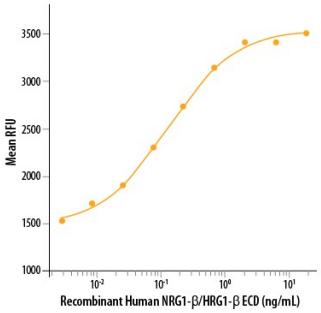
DATA

SDS-PAGE



1 µg/lane of Recombinant Human NRG1-β1/HRG1-β1 Extracellular Domain (Catalog # 377-HB) was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 36 kDa.

Bioactivity



Recombinant Human NRG1-β1/HRG1-β1 Extracellular Domain (Catalog # 377-HB) stimulates cell proliferation of the MCF-7 human breast cancer cell line in a serum free assay. The ED_{50} for this effect is typically 2.5-12.5 ng/mL.

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.

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