

## DESCRIPTION

<b>Source</b>	Human embryonic kidney cell, HEK293-derived human Neuregulin-1/NGR1 protein		
	Human NRG1/HRG1-alpha (Ser20-Lys241) Accession # AAI50610.1	IEGRMD	Human IgG <sub>1</sub> (Pro100-Lys330)
	N-terminus		C-terminus
<b>N-terminal Sequence Analysis</b>	Ser20		
<b>Structure / Form</b>	Disulfide-linked homodimer		
<b>Predicted Molecular Mass</b>	51 kDa		

## SPECIFICATIONS

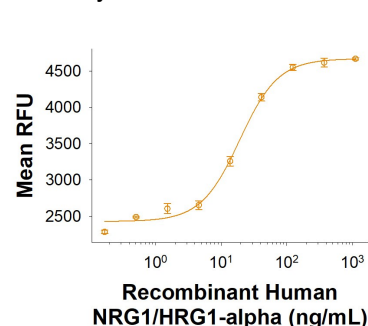
<b>SDS-PAGE</b>	65-79 kDa, under reducing conditions.
<b>Activity</b>	Measured in a serum-free cell proliferation assay using MCF-7 human breast cancer cells. Karey, K.P. <i>et al.</i> (1988) Cancer Research 48:4083. The ED <sub>50</sub> for this effect is 8.00-80.0 ng/mL.
<b>Endotoxin Level</b>	<0.10 EU per 1 µg of the protein by the LAL method.
<b>Purity</b>	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 500 µg/mL in 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>	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

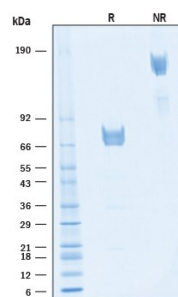
## DATA

### Bioactivity



**Recombinant Human NRG1/HRG1-alpha Fc Chimera Protein Bioactivity.** Recombinant Human NRG1/HRG1-alpha stimulates cell proliferation on MCF 7 human breast cancer cells. The ED<sub>50</sub> for this effect is 8.00-80.0 ng/mL.

### SDS-PAGE



**Recombinant Human NRG1/HRG1-alpha Fc Chimera Protein SDS-PAGE.** 2 µg/lane of Recombinant Human NRG1/HRG1-alpha Fc Chimera Protein (Catalog # 11353-NR) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 65-79 kDa and 130-160 kDa, respectively.

#### 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 encodes more than 14 soluble or transmembrane proteins. The extracellular domain of the transmembrane NRG1 isoforms can be proteolytically cleaved to release soluble growth factors. The  $\alpha$ - or  $\beta$ -splice variants differ in their C-terminal region. All NRG1 isoforms contain an EGF-like domain 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 NRG1 (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 to 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. Lemke, G. (2006) Science STKE **325**:pe11.
2. Esper, R.M. *et al.* (2006) Brain Res. Brain Res. Rev. **51**:161.
3. Tosato, S. *et al.* (2005) Schizophr. Bull. **31**:613.