

# Recombinant Human Neuregulin-1a (rh NRG-1a / HRG-a1)

**Synonyms:** Heregulin- $\alpha$ -1(HRG-a1)

**Introduction:** Neuregulin/Heregulin is a family of structurally related polypeptide growth factors derived from alternatively spliced genes (NRG-1, NRG-2, NRG-3 and NRG-4). To date, there are over 14 soluble and transmembrane proteins derived from the NRG-1 gene. Proteolytic processing of the extracellular domain of the transmembrane NRG-1 isoforms release soluble growth factors.

NRG is a signaling protein for Erb2/Erb4 receptor heterodimers on the cardiac muscle cells, playing an important role in the heart structure and function through inducing ErbB2/ErbB4 receptor phosphorylation and cardiomyocyte differentiation. Research on molecular level discovered that recombinant Neuregulin could make disturbed myocardial cell structure into order and strengthen the connection between myocardial cells by intercalated discs reorganization. Pharmacodynamic experiments in animals showed that rh NRG-1 can reduce the degree of damage on myocardial cells caused by ischemia, hypoxia and viral infection.

**Description:** Recombinant human Neuregulin-1a produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 65 amino acids and having a total molecular mass of 7.4kDa. NRG-1a is purified by proprietary chromatographic techniques.

**Source:** *Escherichia Coli*.

**Physical Appearance:** Sterile filtered white lyophilized (freeze-dried) powder.

**Formulation:** Lyophilized from a 0.2 $\mu$ m filtered solution in PBS, pH 6.0  
The aliquots/samples of 1 $\mu$ g contain Trehalose 5% (w/vol) for better recovery

**Solubility:** It is recommended to reconstitute the lyophilized rh NRG-1a in sterile H<sub>2</sub>O not less than 100  $\mu$ g/ml, which can then be further diluted to other aqueous solutions.

**Stability:** Lyophilized rh NRG-1a although stable at room temperature for 3 weeks, should be stored desiccated below -18° C. Upon reconstitution rh NRG-1a should be stored at 4° C between 2-7 days and for future use below -18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

**Purity:** Greater than 95.0% as determined by SDS-PAGE.

**Amino acid Sequence:**

SHLVKCAEKE KTFVNGGEC FMVKDLSNPS RYLCKQPGF TGARCTENVP MKVQNQEKAE ELYQK.

**Biological Activity:** The ED<sub>50</sub> was determined by the dose-dependent stimulation of the proliferation of human MCF-7 cells is less than 40 ng/ml, corresponding to a specific activity of > 2.5 $\times$ 10<sup>4</sup> units/mg.

**Endotoxicity:** The endotoxin level is less than 1 EU /  $\mu$ g determined by LAL method.

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|----------------|-------------|--------|----------|
| <i>small</i>   | 5 $\mu$ g   | Cat.N° | 11345090 |
| <i>medium</i>  | 20 $\mu$ g  | Cat.N° | 11345094 |
| <i>large</i>   | 100 $\mu$ g | Cat.N° | 11345096 |
| <i>x-large</i> | 500 $\mu$ g | Cat.N° | 11345097 |

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