

NRG1-beta 1 Protein, Human (65a.a, His)

Cat. No.:	HY-P72007
Synonyms:	Acetylcholine receptor-inducing activity; Acetylcholine receptor-inducing activity, chick, homolog of; ARIA; Breast cancer cell differentiation factor p45; GGF; GGF2; glial growth factor 2; Glial growth factor; Heregulin; heregulin, alpha 45kD, ERBB2 p185-activator; ; heregulin, alpha; HGL; HRG; HRG1; HRGA; MST131; MSTP131;
Species:	Human
Source:	E. coli
Accession:	Q02297-6 (S177-E241)
Gene ID:	3084
Molecular Weight:	Approximately 7.5 kDa

PROPERTIES

AA Sequence	S H L V K C A E K E K T F C V N G G E C F M V K D L S N P S R Y L C K C P N E F T G D R C Q N Y V M A S F Y K H L G I E F M E A E
Biological Activity	The ED ₅₀ as determined in a serum-free cell proliferation assay using MCF7 human breast cancer cells is less than 3 ng/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from sterile 50 mM Tris-HCL, 300 mM NaCL, pH 8.0.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in sterile distilled water. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	NRG1-alpha protein acts as a direct ligand for ERBB3 and ERBB4 tyrosine kinase receptors, concurrently recruiting ERBB1 and ERBB2 coreceptors, thereby inducing ligand-stimulated tyrosine phosphorylation and activation of the ERBB receptors. The diverse functions of its multiple isoforms encompass the induction of growth and differentiation in various cell types, including epithelial, glial, neuronal, and skeletal muscle cells. NRG1-alpha is also involved in the expression of acetylcholine receptors during neuromuscular junction formation, the stimulation of lobuloalveolar budding and milk production in the mammary gland, and the induction of differentiation in mammary tumor cells. Furthermore, it stimulates Schwann cell proliferation and plays a role in myocardial development, specifically contributing to the trabeculation of the developing
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heart. Isoform 10 is implicated in motor and sensory neuron development. NRG1-alpha binds to ERBB4 and ERBB3, acting as a ligand for integrins and forming a ternary complex with integrins and ERBB3, a crucial step in NRG1-ERBB signaling. It induces the phosphorylation and activation of MAPK3/ERK1, MAPK1/ERK2, and AKT1. Additionally, NRG1-alpha participates in ligand-dependent ERBB4 endocytosis, essential for the activation of these kinases in neurons, and interacts with the LIM domain region of LIMK1. It also forms a ternary complex with ERBB3 and integrins ITGAV:ITGB3 or ITGA6:ITGB4 and interacts with NRDC and BACE1.

Caution: Product has not been fully validated for medical applications. For research use only.

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