Cytokines

Human Recombinant Heregulin-beta 1

Heregulin-beta 1

Catalog #	78071	10 µg
	78071.1	50 µg
	78071.2	1000 µg

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Product Description

Heregulin-beta 1 also known as neuregulin-1 (NRG-1) is a member of the epidermal growth factor (EGF) family of growth factors and acts as a ligand for ErbB family receptor tyrosine kinases (Britsch et al.). Heregulin/neuregulin is a family of structurally related polypeptide growth factors derived from alternatively spliced genes (NRG1, NRG2, NRG3, and NRG4). Heregulin-beta 1 plays an important role during the development of the nervous system, heart, and mammary glands (Britsch). Heregulin-beta 1 is expressed in neuronal cells, and modulates cell growth and differentiation of the cells during development and wound healing (Mei & Xiong). It has been implicated through in vivo and in vitro studies that heregulin-beta 1/ErbB signaling is crucial for multiple aspects of cardiovascular development and protects the heart from ischemic injury (Odiete et al.). Heregulin-beta 1 also promotes invasiveness and metastasis of breast cancer cells (Hutcheson et al.). It has also been shown that heregulin-beta 1 has role a in the growth and maintenance of human embryonic stem cells (Wang et al.).

Product Information

Alternative Names:	Acetylcholine receptor-inducing activity, ARIA, Breast cancer cell differentiation factor p45, Glial growth factor, Heregulin Neu differentiation factor, HRG, HRG1, HRG1-beta 1, Neuregulin-1, NRG1, NRG1-beta 1, Sensory and motor neuron-derived factor
Accession Number:	Q02297-6
Amino Acid Sequence:	SHLVKCAEKE KTFCVNGGEC FMVKDLSNPS RYLCKCPNEF TGDRCQNYVM ASFYKHLGIE FMEAE
Predicted Molecular Mass:	7.5 kDa
Species:	Human
Cross Reactivity:	Mouse, Rat
Formulation:	Lyophilized from a sterile-filtered solution in phosphate-buffered saline.
Source:	CHO

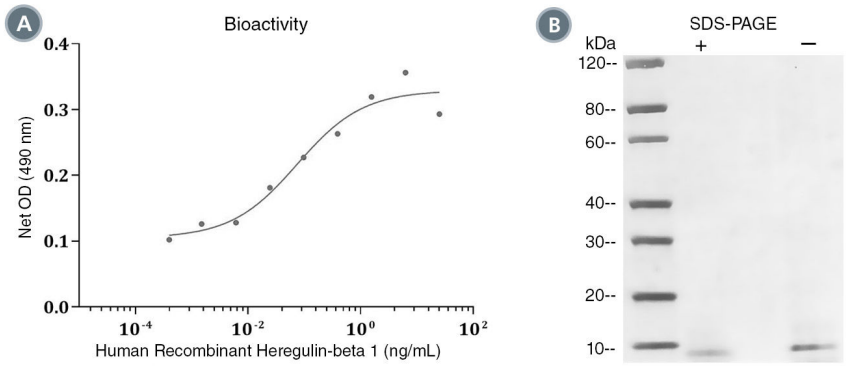
Specifications

Activity:	The specific activity is ≥ 1 x 10^7 units/mg (EC50 ≤ 0.1 ng/mL) as determined by a cell proliferation assay using human MCF-7 cells.
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.2 EU/µg protein.

Preparation and Storage

Storage:	Store at -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 week or at -20°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant Heregulin-beta 1 was tested by its ability to promote the proliferation of human MCF-7 cells. Cell proliferation was measured using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 in the above example is less than 0.1 ng/mL.
(B) 2 µg of Human Recombinant Heregulin-beta 1 was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant Heregulin-beta 1 has a predicted molecular mass of 7.5 kDa.

Related Products

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References

Britsch S et al. (1998) The ErbB2 and ErbB3 receptors and their ligand, neuregulin-1, are essential for development of the sympathetic nervous system. Genes Dev 12(12): 1825–36.
Britsch S. (2007) The neuregulin-I/ErbB signaling system in development and disease. Adv Anat Embryol Cell Biol 190: 1–65.
Hutcheson IR et al. (2011) Fulvestrant-induced expression of ErbB3 and ErbB4 receptors sensitizes oestrogen receptor-positive breast cancer cells to heregulin β1. Breast Cancer Res 13(2): R29.
Mei L & Xiong W-C. (2008) Neuregulin 1 in neural development, synaptic plasticity and schizophrenia. Nat Rev Neurosci 9(6): 437–52.
Odiete O et al. (2012) Neuregulin in cardiovascular development and disease. Circ Res 111(10): 1376–85.
Wang L et al. (2007) Self-renewal of human embryonic stem cells requires insulin-like growth factor-1 receptor and ERBB2 receptor signaling. Blood 110(12): 4111–9.