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Human Recombinant Heregulin-beta 1, ACF

Heregulin-beta 1

Catalog #100-2062 100 µg

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 a role in the growth and maintenance of human embryonic stem cells (Wang et al.). This cytokine can be used in human, bovine, and porcine workflows. This product is animal component-free (ACF).

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

Predicted Molecular Mass: 7.5 kDa

Species: Human, Other

Product Formulation: Lyophilized from a solution containing acetonitrile and trifluoroacetic acid.

Source: E. coli

Purity: ≥ 98% by SDS-PAGE

Specifications

Activity: The EC50 is approximately 0.28 ng/mL (~37.9 pM), as determined by a MAP/ERK-responsive luciferase reporter assay in transfected MCF-7 cells.

Endotoxin Level: Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.1 EU/µg protein.

Preparation and Storage

Stability and Storage: Store at -20 to -80°C. 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 - 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 -20 to -80°C for more than 12 months. Avoid repeated freeze-thaw cycles.

Data

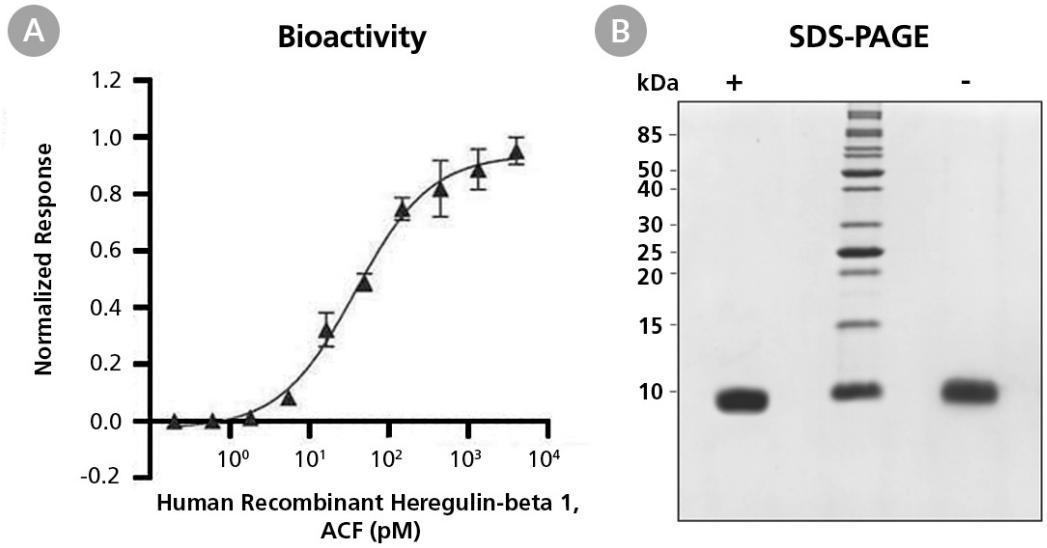

Figure 1. Biological Activity and Molecular Mass of Human Recombinant Heregulin-beta 1, ACF

(A) The biological activity of Human Recombinant Heregulin-beta 1, ACF was tested by its ability to induce MAP/ERK signaling in transfected MCF-7 cells using a luciferase reporter assay. Firefly luciferase activity was normalized to control Renilla luciferase activity. The EC50 is defined as the effective concentration of the growth factor at which Heregulin-beta 1 response is at 50% of maximum. The EC50 in the above example is 37.9 pM (0.28 ng/mL). (B) 3 µg of Human Recombinant Heregulin-beta 1, ACF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant Heregulin-beta 1, ACF has a predicted molecular mass of 7.5 kDa.

Related Products

For a complete list of cytokines or peptide pools, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

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.