

Product Information

Heregulin- β , EGF Domain human, recombinant expressed in *E. coli*

Catalog Number **H0786**
Storage Temperature -20°C

Product Description

Heregulin- β , EGF Domain, human is a thrombin cleaved GST-fusion protein, expressed in *E. coli*, corresponding to the EGF domain of Heregulin- β 3 (amino acid residues 178-241). Heregulin- β differs slightly from Heregulin- α in the EGF domain, due to alternate splicing.

Heregulin (HRG) is a growth factor ligand for ErbB3 and ErbB4 receptor tyrosine kinases. The binding of HRG results in receptor dimerization and receptor transautophosphorylation. The phosphorylated receptors recruit cellular signaling proteins, initiating signaling pathways. Both isoforms bind to ErbB/3 and ErbB/4 homodimers, but not directly to ErbB/2 receptors, which are closely related to EGF-R. When ErbB/2 is combined into a heterodimer with ErbB/3 or ErbB/4, the binding affinities of both α - and β -isoforms are substantially improved.

Heregulin is the human homologue to the neu differentiation factor (NDF) of rat. It was originally isolated on the basis of its ability to activate the 185 kDa transmembrane tyrosine kinase encoded by the proto-oncogene ErbB2/HER-2/neu. The heregulin family is comprised of several members, all of which contain one EGF-like motif and an IgD-like motif in the extracellular domain.

In culture, HRGs are mitogenic for Schwann cells and weakly to moderately mitogenic for a variety of epithelial cells, including mammary, ovarian, lung, and gastric cells. They inhibit proliferation and induce differentiation in some tumor cell lines, such as certain mammary tumor cells, which are arrested at the G₂/M phase. Heregulin also stimulates tyrosine phosphorylation of the ErbB3/HER-3 receptor.

This product is supplied in a solution of phosphate buffered saline containing 30% glycerol.

The biological activity of human recombinant heregulin- β is measured by increased tyrosine phosphorylation of the c-ErbB3/HER-3 receptor in treated MCF-7 cells.

Purity: $\geq 80\%$ (SDS-PAGE)

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

The product remains active for 2 years at -20°C . Aliquot to avoid repeated freezing and thawing. Do not store in a frost-free freezer.

References

1. Wang, L.M., *et al.*, ErbB2 expression increases the spectrum and potency of ligand-mediated signal transduction through ErbB4. *Proc. Natl. Acad. Sci. USA*, **95**, 6809-6814 (1998).
2. Alimandi, M., *et al.*, Epidermal growth factor and betacellulin mediate signal transduction through co-expressed ErbB2 and ErbB3 receptors. *EMBO J.*, **16**, 5608-5617 (1997).
3. Sadick, M.D., *et al.*, Analysis of heregulin-induced ErbB2 phosphorylation with a high-throughput kinase receptor activation enzyme-linked immunosorbant assay. *Anal. Biochem.*, **235** (2), 207-214 (1996).
4. Peles, E., *et al.*, Isolation of the neu/HER-2 stimulatory ligand: a 44 kd glycoprotein that induces differentiation of mammary tumor cells. *Cell*, **69**(1), 205-216 (1992).
5. Wen, D., *et al.*, Neu differentiation factor: a transmembrane glycoprotein containing an EGF domain and an immunoglobulin homology unit. *Cell*, **69**, 559-572 (1992).

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