

## HER4 Protein, Human (HEK293, His)

<b>Cat. No.:</b>	HY-P70841
<b>Synonyms:</b>	Receptor tyrosine-protein kinase erbB-4; Proto-oncogene-like protein c-ErbB-4; Tyrosine kinase-type cell surface receptor HER4; p180erbB4; ERBB4; HER4
<b>Species:</b>	Human
<b>Source:</b>	HEK293
<b>Accession:</b>	Q15303 (Q26-R649)
<b>Gene ID:</b>	2066
<b>Molecular Weight:</b>	94-107 kDa

### PROPERTIES

<b>AA Sequence</b>	<pre> Q S V C A G T E N K   L S S L S D L E Q Q   Y R A L R K Y Y E N   C E V V M G N L E I T S I E H N R D L S   F L R S V R E V T G   Y V L V A L N Q F R   Y L P L E N L R I I R G T K L Y E D R Y   A L A I F L N Y R K   D G N F G L Q E L G   L K N L T E I L N G G V Y V D Q N K F L   C Y A D T I H W Q D   I V R N P W P S N L   T L V S T N G S S G C G R C H K S C T G   R C W G P T E N H C   Q T L T R T V C A E   Q C D G R C Y G P Y V S D C C H R E C A   G G C S G P K D T D   C F A C M N F N D S   G A C V T Q C P Q T F V Y N P T T F Q L   E H N F N A K Y T Y   G A F C V K K C P H   N F V V D S S S C V R A C P S S K M E V   E E N G I K M C K P   C T D I C P K A C D   G I G T G S L M S A Q T V D S S N I D K   F I N C T K I N G N   L I F L V T G I H G   D P Y N A I E A I D P E K L N V F R T V   R E I T G F L N I Q   S W P P N M T D F S   V F S N L V T I G G R V L Y S G L S L L   I L K Q Q G I T S L   Q F Q S L K E I S A   G N I Y I T D N S N L C Y Y H T I N W T   T L F S T I N Q R I   V I R D N R K A E N   C T A E G M V C N H L C S S D G C W G P   G P D Q C L S C R R   F S R G R I C I E S   C N L Y D G E F R E F E N G S I C V E C   D P Q C E K M E D G   L L T C H G P G P D   N C T K C S H F K D G P N C V E K C P D   G L Q G A N S F I F   K Y A D P D R E C H   P C H P N C T Q G C N G P T S H D C I Y   Y P W T G H S T L P   Q H A R </pre>
<b>Biological Activity</b>	Immobilized Human HER4, at 2 µg/mL (100µL/well) can bind Biotinylated Human NRG1 β1, the ED <sub>50</sub> for this effect is 16.09 ng/mL.
<b>Appearance</b>	Lyophilized powder.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution of PBS, pH 7.4.
<b>Endotoxin Level</b>	<1 EU/µg, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH <sub>2</sub> O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
<b>Storage &amp; Stability</b>	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**

HER4, a tyrosine-protein kinase, serves as a pivotal cell surface receptor for neuregulins and EGF family members, playing indispensable roles in the development of the heart, central nervous system, and mammary gland, as well as in gene transcription, cell proliferation, differentiation, migration, and apoptosis. It is essential for normal cardiac muscle differentiation during embryonic development and postnatal cardiomyocyte proliferation. Moreover, HER4 is required for the proper development of the embryonic central nervous system, particularly neural crest cell migration and axon guidance, as well as for mammary gland differentiation and lactation induction. Acting as a receptor for neuregulins NRG1, NRG2, NRG3, NRG4, and EGF family members BTC, EREG, and HBEGF, ligand binding triggers receptor dimerization and autophosphorylation, creating multiple combinations of intracellular phosphotyrosines that elicit ligand- and context-specific cellular responses. HER4 mediates phosphorylation of SHC1 and activates the MAP kinases MAPK1/ERK2 and MAPK3/ERK1. Isoforms JM-A CYT-1 and JM-B CYT-1 phosphorylate PIK3R1, activating phosphatidylinositol 3-kinase and AKT1 to protect against apoptosis and promote cell migration in response to NRG1. Isoforms JM-A CYT-2 and JM-B CYT-2 lack the phosphotyrosine necessary for PIK3R1 interaction, thus foregoing these effects. Proteolytic processing of isoforms JM-A CYT-1 and JM-A CYT-2 yields soluble intracellular domains (4ICD) that translocate to the nucleus, promoting nuclear import of STAT5A, mammary epithelium differentiation, cell proliferation, and gene expression activation. Additionally, ERBB4 soluble intracellular domains can translocate to mitochondria, inducing apoptosis.

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

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