

# human HER2/ErbB2, His-Tag

Human epidermal growth factor receptor 2

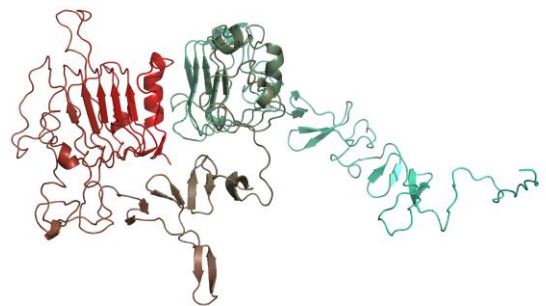
Cat. no. P2020-165

## Product Information

Protein:	human HER2/ErbB2, His-Tag (72.1 kDa)
Uniprot#:	P04626
Sequence:	<pre>MSTQVCTGTDMLRLPASPETHDMLRHLVYQGCQVVQGNLELTYLPTNASLSFLQDIQEV QGYVLIAHNQVRQVPLQRLRIVRGTQLFEDNYALAVLDNGDPLNNTTPTVGASPGGLREL QLRSLTEILKGGVLIQRNPQLCYQDTILWKDIFHKNNQLALTLIDTNRSRACHPCSPMCK GSRCWGESSEDCQSLTRTVCAAGGCARCKGPLPTDCCHEQCAAGCTGPKHSDCLACLFNH SGICELHCPALVYNTDTFESMPNPEGRYTFGASCVTACPYNYLSTDVGSCTLVCPLHNQ EVTAEADGTQRCEKCSKPCARVCYGLGMEHLREVRVTSANIQEFAGCKKIFGSLAFLPES FDGDPAANTAPLQPEQLQVFETLEEITGYLYISAWPDSLPLDSVFQNLQVIRGRILHNGA YSLTLQGLGISWLGLRSLRELGSGLAIHHNTHLCFVHTVPWDQLFRNPHQALLHTANRP EDECVGEGLACHQLCARGHCWGPPTQCVNCSQFLRGQECVEECRVLQGLPREYVNRHC LPCHPECQPQNGSVTCFGPEADQCVACAHYKDPFCVARCPSGVKPDLSYMPIWKFPEE GACQPCPINCTHSCVDLDDKGCPAEQRASPL</pre>
	Methionine at pos. 1 might be present due to cloning constraints, N-terminal His-tag not shown in sequence.
Source:	Recombinantly expressed in in HEK293.
Tag(s):	His-tag, N-terminal
Purification:	Purified by affinity chromatography and subsequent buffer exchange.
Formulation:	PBS; pH 7.4. Liquid, stored and shipped at -80 °C.
Purity:	> 80 % (will be determined by densitometry of Coomassie stained gel, example next page)
Concentration:	Will be determined by BCA-Assay.
Long-term storage:	No recommendations.
Comment:	Protein migrates at higher molecular weight during SDS-PAGE due to posttranslational modifications.

## **Background Information:**

The human epidermal growth factor receptor 2 (HER2), which is also referred to as ErbB2 as it is encoded by the ERBB2 gene (erythroblastic oncogene B), is a receptor tyrosine kinase that belongs to the epidermal growth factor receptor (EGFR) family. The EGFR family consists of four members, including ErbB1 (HER1), ErbB2 (HER2), ErbB3 (HER3), and ErbB4 (HER4). All members share a similar structure, containing an extracellular ligand-binding domain, a transmembrane domain, and an intracellular tyrosine kinase domain. Intriguingly, HER2 is the only one, which does not directly bind any ligand. Instead, hetero-dimerization with any of the other three receptors upon ligand engagement results in auto-phosphorylation on the intracellular tyrosine kinase



*Structural model of human HER2/ErbB2*

# human HER2/ErbB2, His-Tag

## Human epidermal growth factor receptor 2

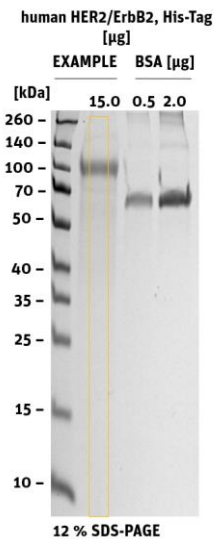
Cat. no. P2020-165

### Product Information

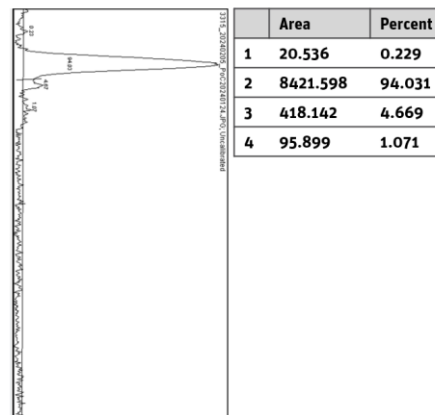
domain, thereby initiating a myriad of downstream signaling pathways. In HER2 overexpressing cells, HER2 forms also homodimers, but as an orphan receptor in a ligand-independent manner. HER2 signaling pathways are intricate networks of molecular interactions that regulate cellular processes, including cell growth, proliferation, differentiation, and survival. Thus, HER2 is essentially involved in maintaining tissue homeostasis. Moreover, HER2 signaling promotes cytoskeletal rearrangements, cell migration and the expression of metalloproteinases (MPPs) involved in extracellular matrix remodeling and

invasion. Aberrant HER2 signaling, due to gene amplification or overexpression, results in uncontrolled cell growth and metastasis, encouraging the development and progression of cancer. Dysregulation of HER2 is associated with various cancer types, most prominently breast cancer. Therefore, HER2-targeted therapies, including monoclonal antibodies and small molecule inhibitors, are being developed. Therapeutics, such as trastuzumab (Herceptin), pertuzumab (Perjeta), and ado-trastuzumab emtansine (Kadcyla), have revolutionized the treatment of HER2-positive breast cancer cells, significantly improving patient survival.

### Quality Information (provided for each lot):



SDS-PAGE/Coll.Coomassie



Histogram (of marked lane in gel picture)