PRODUCT INFORMATION

HER2/ERBB2 Extracellular Domain (human, recombinant)

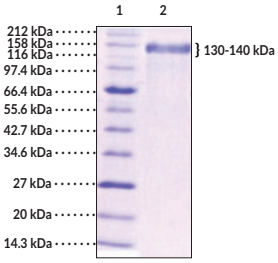
Item No. 32007

Overview and Properties

Synonyms: CD340, Erb-B2 Receptor Tyrosine Kinase 2, Human Epidermal Growth Factor Receptor 2, Neu, Receptor Tyrosine-Protein Kinase ErbB-2
Source: Active recombinant C-terminal human IgG1 Fc-tagged HER/ERBB2 expressed in HEK293 cells
Amino Acids: 23-652
Molecular Weight: 96.1 kDa
Storage: -80°C (as supplied)
Stability: ≥1 year
Purity: ≥90% estimated by SDS-PAGE
Supplied in: Lyophilized from sterile PBS, pH 7.4
Bioactivity: See figures for details

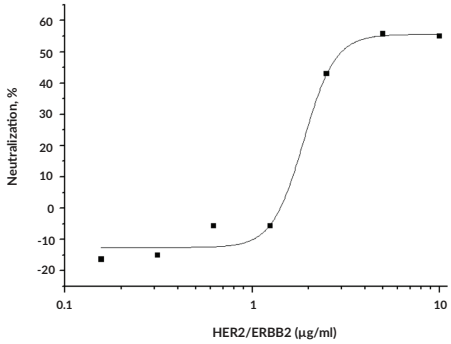
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images

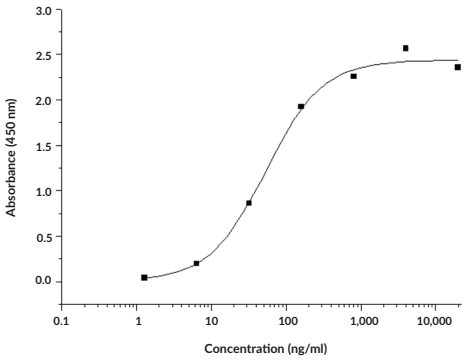


Lane 1: MW Markers
Lane 2: HER2/ERBB2 Extracellular Domain

SDS-PAGE Analysis of HER2/ERBB2 Extracellular Domain. This protein has a calculated molecular weight of 96.1 kDa. It has an apparent molecular weight of approximately 130-140 kDa by SDS-PAGE under reducing conditions due to glycosylation.



HER2/ERBB2 Extracellular Domain Neutralizes Anti-HER2/ERBB2-mediated Inhibition of BT474 Human Breast Ductal Carcinoma Cell Proliferation. The EC_{50} value for this effect is 0.5-3 µg/ml in the presence of 0.6 µg/ml Anti-ErbB2/Her2 Monoclonal Antibody.



HER2/ERBB2 Binding in a Functional ELISA. Immobilized HER2/ERBB2 Extracellular Domain at 2.5 µg/ml can bind herceptin with a linear range of 3.2-80 ng/ml.

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

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Description

Human epidermal growth factor receptor 2 (HER2), also known as ERBB2 and Neu, is a cell surface receptor and member of the EGF family of receptor tyrosine kinases that is encoded by *ERBB2* in humans.[1] It is a 185 kDa transmembrane receptor composed of an intracellular tyrosine kinase domain, a transmembrane lipophilic segment, and an extracellular domain, that is expressed at low levels in various epithelial tissues, as well as breast, lung, kidney, ovary, placenta, and the gastrointestinal tract.[2] Unlike other EGF receptors, HER2 does not bind ligands or undergo a conformational change in its extracellular domain for activation. HER2 is activated upon heterodimerization with HER3 or HER4, which stabilizes ligand binding to HER3 and HER4, or homodimerization and enhances kinase-mediated activation of the MAPK and PI3K cellular signaling pathways.[1,2] Truncated forms of HER2 with constitutive oncogenic activity can be generated by proteolytic cleavage of the extracellular domain, and serum levels of the extracellular domain are increased in patients with breast, ovarian, lung, and prostate cancers.[2] *ERBB2* is overexpressed in 12 to 15% of breast cancer tumors and is associated with accelerated growth rate, increased rate of recurrence, and poor overall survival.[2] Various mutations in *ERBB2*, with or without gene amplification, have been found in prostate, colon, bladder, breast, lung, and colorectal tumors, as well as metastatic cutaneous squamous small cell carcinomas.[3,4] Cayman's HER2/ERBB2 Extracellular Domain (human, recombinant) protein can be used for ELISA, Western blot, and cell-based assay applications. This protein is a disulfide-linked homodimer. The reduced monomer, comprised of HER2/ERBB2 (amino acids 23-652) fused to human IgG1 Fc at its C-terminus, consists of 868 amino acids and has a calculated molecular weight of 96.1 kDa. As a result of glycosylation, the monomer migrates at approximately 130-140 kDa by SDS-PAGE under reducing conditions.

References

1. Gerson, J.N., Skiara, S., Denlinger, C.S., *et al.* Perspectives of HER2-targeting in gastric and esophageal cancer. *Expert Opin. Investig. Drugs* **26(5)**, 531-540 (2017).
2. Perrier, A., Gligorov, J., Lefèvre, G., *et al.* The extracellular domain of Her2 in serum as a biomarker of breast cancer. *Lab. Invest.* **98(6)**, 696-707 (2018).
3. Connell, C.M. and Doherty, G.J. Activating HER2 mutations as emerging targets in multiple solid cancers. *ESMO Open* **2(5)**, e000279 (2017).
4. Bose, R., Kavuri, S.M., Searleman, A.C., *et al.* Activating HER2 mutations in HER2 gene amplification negative breast cancer. *Cancer Discov.* **3(2)**, 224-237 (2013).

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