

IVMB0415

Product Information

Product SKU: IVMB0415	Clone: 2C4	Target: HER-2/neu
Size: 50 mg, 25 mg, 5 mg, 1 mg		Isotype: Human IgG1k

Additional Information

Reactivity: Human	Host Species: Human
Antibody Type: Biosimilar Recombinant Human Monoclonal Antibody	Expression Host: HEK-293 Cells

Immunogen Information

Background: HER2 (ERBB2) is a member of the epidermal growth factor (EGF) family of receptor tyrosine kinases that regulate cell growth, survival and differentiation ^{1,2}. HER2 activates downstream signaling pathways by forming a heterodimer with other ligand-bound EGF receptor family members (EGF receptor, HER3, HER4). Dysregulation of HER2 contributes to tumorigenesis in breast, ovarian, gastric, and other cancers ¹. Additionally, HER2-HER3 heterodimers are potent signaling dimers required for HER2-mediated cancer cell proliferation ³.

Pertuzumab is a humanized monoclonal antibody used in the treatment of breast cancers that have either HER2 protein overexpression or ERBB2 gene amplification ². Pertuzumab blocks HER2 function as a coreceptor by sterically inhibiting its heterodimerization with other HER family members, including EGF receptor, HER3, and HER4 ^{3,4,5,6}. As a result, HER2's ability to activate pathways associated with cancer cell proliferation and survival is limited ². Additionally, when pertuzumab binds to a cancer cell, antibody-dependent cellular cytotoxicity is triggered.

Pertuzumab is a full-length, chimeric IgG1 antibody generated by cloning VLK1 and VHIII of murine 2C4 into a vector containing human kappa and CH1 domains ⁷. Pertuzumab was initially expressed and purified as a Fab from *E. coli* for residue optimization and subsequently was stably produced in Chinese hamster ovary cells.

Contact between pertuzumab and HER2 occurs at the HER2 heterodimerization interface ⁴ and is primarily made with the heavy chain of the antibody fragment, with a small contribution from the light chain ⁸. Additionally, Leu295 and His296 are important for binding.

Endotoxin Level:	< 1.0 EU/mg as determined by the LAL method
Applications:	ELISA
Synonyms:	ERBB2, CD340, NGL, TKR1
Antigen Distribution:	HER2 is ubiquitously expressed in epithelial, mesenchymal, and neuronal cells and their cellular progenitors. It is mostly localized to the plasma membrane and is generally excluded from clathrin-coated pits.
Immunogen:	Humanized antibody derived from mouse clone 2C4.
Formulation:	This biosimilar antibody is aseptically packaged and formulated in 0.01 M phosphate buffered saline (150 mM NaCl) PBS pH 7.2 - 7.4 with no carrier protein, potassium, calcium or preservatives added. Due to inherent biochemical properties of antibodies, certain products may be prone to precipitation over time. Precipitation may be removed by aseptic centrifugation and/or filtration.
Specificity:	Pertuzumab binds specifically to human and cynomolgus HER2 near the center of extracellular domain II of the dimerization arm, adjacent to the binding pocket used for receptor dimerization.
Recommended Isotype	Human IgG1
Controls:	
Storage & Handling:	Functional grade biosimilar antibodies may be stored sterile as received at 2-8°C for up to one month. For longer term storage, aseptically aliquot in working volumes without diluting and store at -80°C. Avoid Repeated Freeze Thaw Cycles.