

ErbB3 Monoclonal Antibody (2F12)

Catalog Number MA5-12675

Product data sheet

Details		Species Reactivity	
Size	500 µL	Species reactivity	Bovine, Human, Mouse, Rat
Host/Isotope	Mouse / IgG2a, kappa	Published species	Rat, Non-human primate, Human, Mouse, Not Applicable
Class	Monoclonal		
Type	Antibody		
Clone	2F12		
Immunogen	Recombinant rat c-erbB-3/HER-3 oncoprotein	Tested Applications	Dilution *
Conjugate	Unconjugated	Western Blot (WB)	4 µg/mL
Form	Liquid		
Concentration	0.2 mg/mL		
Purification	Protein A		
Storage buffer	PBS, pH 7.4, with 0.2% BSA		
Contains	0.09% sodium azide		
Storage Conditions	4° C		
		Published Applications	
		Western Blot (WB)	See 12 publications below
		Immunoprecipitation (IP)	See 3 publications below
		Immunohistochemistry (IHC)	See 2 publications below
		Immunocytochemistry (ICC/IF)	See 6 publications below
		Neutralization (Neu)	See 1 publications below

* Suggested working dilutions are given as a guide only. It is recommended that the user titrate the product for use in their own experiment using appropriate negative and positive controls.

Product specific information

MA5-12675 targets HER-3 in WB applications and shows reactivity with Bovine, Human, mouse, and Rat samples. The MA5-12675 immunogen is recombinant rat c-erbB-3/HER-3 oncoprotein.

Background/Target Information

ErbB3 (c-erbB-3/HER-3) is a member of the type I family of growth factor receptors and binds to ligands in the heregulin family. ErbB3 is over-expressed in a variety of tumors in the prostate, bladder, breast, stomach, pancreas, and colon. Heregulin and EGF stimulate tyrosine phosphorylation of c-erbB-3 to different extents. The ErbB3 gene is located on the long arm of human chromosome 12 (12q13) and is transcribed into a 6.2 kb mRNA which is translated into a 160/180 kDa glycoprotein. The ErbB3 gene encodes a transmembrane receptor tyrosine kinase due to alternative splicing and forms heterodimers with other EGF receptor family members that have kinase activity. Heterodimerization leads to the activation of pathways that lead to cell proliferation or differentiation. Alternate transcriptional splice variants encoding different isoforms of ErbB3 have been characterized. One ErbB3 isoform lacks the intermembrane region, is secreted outside the cell, and acts to modulate the activity of the membrane-bound form. Additional splice variants have also been reported, but they have not been thoroughly characterized.

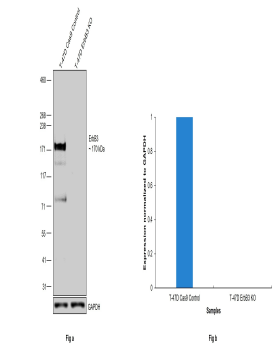
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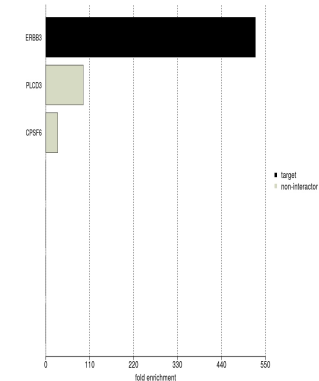
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Product Images For ErbB3 Monoclonal Antibody (2F12)



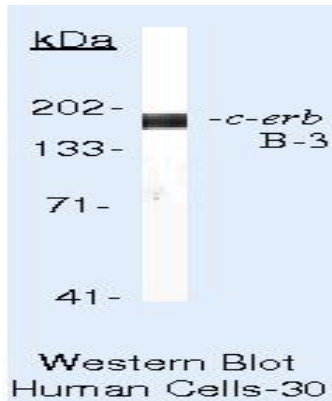
ErbB3 Antibody (MA5-12675) in WB

Knockout of ErbB3 was achieved by CRISPR-Cas9 genome editing using LentiArray™ Lentiviral sgRNA (Product # A32042, Assay ID CRISPR764358_LV) and LentiArray Cas9 Lentivirus (Product # A32064). Western blot analysis of ErbB3 was performed by loading 30 µg of T-47D Cas9 (Lane 1) and T-47D ErbB3 KO (Lane 2) membrane enriched extracts. The samples were electrophoresed using NuPAGE™ 3-8% Tris-Acetate Protein Gel (Product # EA0378BOX). Resolved proteins were then transferred onto a nitrocellulose membrane (Product # IB23001) by iBlot® 2 Dry Blotting System (Product # IB21001). The blot was probed with Anti-ErbB3 Monoclonal Antibody (2F12) (Product # MA5-12675, 4 µg/mL dilution) and Goat anti-Mouse IgG (H+L) Superclonal™ Recombinant Secondary Antibody, HRP (Product # A28177, 1:5000 dilution) using the iBright FL 1000 (Product # A32752). Chemiluminescent detection was performed using SuperSignal™ West Dura Extended Duration Substrate (Product # 34076). Loss of signal upon CRISPR mediated knockout (KO) using the LentiArray™ CRISPR product line confirms that antibody is specific to ErbB3. Uncharacterized bands were observed at ~80 kDa and ~150 kDa in T-47D Cas9 sample.



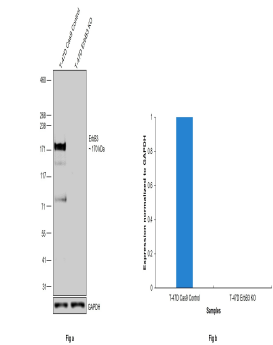
ErbB3 Antibody (MA5-12675)

IP-MS enrichment of ERBB3 (LFQ intensity): ERBB3 was enriched 525-fold from MCF7 lysate compared to background proteins, using the optimized IP-MS workflow with Pierce MS-Compatible Magnetic IP Kit protein A/G (Product # 90409) and ERBB3 antibody (Product # MA5-12675). The STRING database (www.string-db.org) was used to identify the protein interactor list. See more information on IP-MS verification of antibody selectivity. {IP-MS}



ErbB3 Antibody (MA5-12675) in WB

Western blot of HER-3 using HER-3 Monoclonal Antibody (Product # MA5-12675) on T47D Cells.



ErbB3 Antibody (MA5-12675)

Antibody specificity was demonstrated by CRISPR-Cas9 mediated knockout of target protein. A loss of signal was observed for target protein in ErbB3 KO cell line compared to control cell line using Anti-ErbB3 Monoclonal Antibody (2F12) (Product # MA5-12675). {KO}

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PubMed References For ErbB3 Monoclonal Antibody (2F12)

12 Western Blot References

Species / Dilution	Summary
Human / 1:500	MA5-12675 was used in western blot to study the dimerization of epidermal growth factor receptors prior to epidermal growth factor binding in plasma membrane
	Journal of cell science (2008; 121: 3207) "All EGF(ErbB) receptors have preformed homo- and heterodimeric structures in living cells." Author(s):Tao RH,Maruyama IN PubMed Article URL: http://dx.doi.org/10.1242/jcs.033399
Human / Not Cited	MA5-12675 was used in western blot to investigate the role of EGFR signaling in the effects of ERBB2-targeting drugs
	Oncogenesis (2012; 1:) "Strong EGFR signaling in cell line models of ERBB2-amplified breast cancer attenuates response towards ERBB2-targeting drugs." Author(s):Henjes F,Bender C,von der Heyde S,Braun L,Mannsperger HA,Schmidt C,Wiemann S,Hasmann M,Aulmann S,Beissbarth T,Korf U PubMed Article URL: http://dx.doi.org/10.1038/oncsis.2012.16
Human / Not Cited	MA5-12675 was used in western blot to study the treatment of malignant pleural mesothelioma by targeting multiple signaling pathways
	Oncology (2005; 68: 500) "Therapeutic targeting of multiple signaling pathways in malignant pleural mesothelioma." Author(s):Mukohara T,Civiello G,Johnson BE,Janne PA PubMed Article URL: http://dx.doi.org/10.1159/000086994
Human / Not Cited	MA5-12675 was used in western blot to study the effect of
	Breast cancer research and treatment (2010; 122: 685) "EGFR over-expression and activation in high HER2, ER negative breast cancer cell line induces trastuzumab resistance." Author(s):Dua R,Zhang J,Nhonthachit P,Penuel E,Petropoulos C,Parry G PubMed Article URL: http://dx.doi.org/10.1007/s10549-009-0592-x
Human / Not Cited	MA5-12675 was used in western blot to study the value of HER3 expression and markers of epithelial-mesenchymal transition in predicting sensitivity of breast and pancreatic cancer cell lines to elisidepsin
	PloS one (2013; 8:) "Epithelial-mesenchymal transition markers and HER3 expression are predictors of elisidepsin treatment response in breast and pancreatic cancer cell lines." Author(s):Teixidó C,Marés R,Aracil M,Ramón y Cajal S,Hernández-Losa J PubMed Article URL: http://dx.doi.org/10.1371/journal.pone.0053645
Human / Not Cited	MA5-12675 was used in Western Blotting to present a novel platform for the generation of Ig-like molecules, designated diabody-Ig (Db-Ig).
	mAbs (2019; 11: 919) "Diabody-Ig: a novel platform for the generation of multivalent and multispecific antibody molecules." Author(s):Seifert O,Rau A,Beha N,Richter F,Kontermann RE PubMed Article URL: http://dx.doi.org/10.1080/19420862.2019.1603024
Human / Not Cited	MA5-12675 was used in Western Blot to develop a novel bispecific antibody targeting EGFR and HER3 for the use as a potential cancer therapy.
	Molecular cancer therapeutics (2020; 19: 1474) "Inhibition of Tumor Cell Growth and Cancer Stem Cell Expansion by a Bispecific Antibody Targeting EGFR and HER3." Author(s):Rau A,Lieb WS,Seifert O,Honer J,Birnstock D,Richter F,Aschmoneit N,Olayioye MA,Kontermann RE PubMed Article URL: http://dx.doi.org/10.1158/1535-7163.MCT-19-1095
Human / Not Cited	MA5-12675 was used in western blot to study the inhibition of HER2-driven signaling and growth suppression of HER2-overexpressing tumor cells by Iressa
	Cancer research (2001; 61: 7184) "The tyrosine kinase inhibitor ZD1839 ("Iressa") inhibits HER2-driven signaling and suppresses the growth of HER2-overexpressing tumor cells." Author(s):Moasser MM,Basso A,Averbuch SD,Rosen N PubMed Article URL: http://www.ncbi.nlm.nih.gov/pubmed/11585753

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	MA5-12675 was used in western blot to discuss targeting MiR-221/-222 to treat breast cancer
Not Applicable / Not Cited	<p>British journal of cancer (2013; 109: 2714)</p> <p>"MiR-221/-222 differentiate prognostic groups in advanced breast cancers and influence cell invasion."</p> <p>Author(s):Falkenberg N,Anastasov N,Rappl K,Braselmann H,Auer G,Walch A,Huber M,Höfig I,Schmitt M,Höfler H, Atkinson MJ,Aubele M</p> <p>PubMed Article URL:http://dx.doi.org/10.1038/bjc.2013.625</p>
Human / Not Cited	<p>MA5-12675 was used in Western Blot to present a novel bivalent and bispecific antagonistic molecule (Dab-Fc) targeting human epidermal growth factors 2 and 3 (HER2 and HER3) derived from the Db-Ig platform, which was developed for the generation of multivalent and multispecific antibody molecules.</p> <p>mAbs (2022; 13:)</p> <p>"A bivalent, bispecific Dab-Fc antibody molecule for dual targeting of HER2 and HER3."</p> <p>Author(s):Rau A,Kocher K,Rommel M,Kühl L,Albrecht M,Gotthard H,Aschmoneit N,Noll B,Olayioye MA,Kontermann RE, Seifert O</p> <p>PubMed Article URL:http://dx.doi.org/10.1080/19420862.2021.1902034</p>
Mouse / Not Cited	<p>MA5-12675 was used in western blot to investigate the protective effect of neuregulin GGF2 against free radical release from activated microglial cells</p> <p>Journal of neuroimmunology (2003; 136: 67)</p> <p>"The neuregulin GGF2 attenuates free radical release from activated microglial cells."</p> <p>Author(s):Dimayuga FO,Ding Q,Keller JN,Marchionni MA,Seroogy KB,Bruce-Keller AJ</p> <p>PubMed Article URL:http://dx.doi.org/10.1016/s0165-5728(03)00003-1</p>
Human / Not Cited	<p>MA5-12675 was used in western blot to identify mechanisms of tumor growth inhibition in ovarian cancer</p> <p>Cancer cell (2010; 17: 298)</p> <p>"An activated ErbB3/NRG1 autocrine loop supports in vivo proliferation in ovarian cancer cells."</p> <p>Author(s):Sheng Q,Liu X,Fleming E,Yuan K,Piao H,Chen J,Moustafa Z,Thomas RK,Greulich H,Schinzel A,Zaghlul S,Batt D,Ettenberg S,Meyerson M,Schoeberl B,Kung AL,Hahn WC,Drapkin R,Livingston DM,Liu JF</p> <p>PubMed Article URL:http://dx.doi.org/10.1016/j.ccr.2009.12.047</p>
3 Immunoprecipitation References	
Species / Dilution	Summary
Human / Not Cited	<p>MA5-12675 was used in immunoprecipitation and western blot to study the role of HER-2 signaling in the regulation of biological networks associated with cell transformation</p> <p>Cancer research (2010; 70: 7862)</p> <p>"HER-2 signaling, acquisition of growth factor independence, and regulation of biological networks associated with cell transformation."</p> <p>Author(s):Bollig-Fischer A,Dziubinski M,Boyer A,Haddad R,Giroux CN,Ethier SP</p> <p>PubMed Article URL:http://dx.doi.org/10.1158/0008-5472.CAN-10-1529</p>
Human / Not Cited	<p>MA5-12675 was used in immunoprecipitation to study the switch from ER/HER to HER/c-Src signaling as T47D breast cancer cells acquire fulvestrant resistance</p> <p>Cancer letters (2014; 344: 90)</p> <p>"T47D breast cancer cells switch from ER/HER to HER/c-Src signaling upon acquiring resistance to the antiestrogen fulvestrant."</p> <p>Author(s):Kirkegaard T,Hansen SK,Larsen SL,Reiter BE,Sørensen BS,Lykkesfeldt AE</p> <p>PubMed Article URL:http://dx.doi.org/10.1016/j.canlet.2013.10.014</p>
Human / Not Cited	<p>MA5-12675 was used in immunoprecipitation to investigate the effect of an anti-EGFR antibody on non-small cell lung cancer cell lines</p> <p>Molecular cancer research : MCR (2007; 5: 393)</p> <p>"Growth stimulation of non-small cell lung cancer cell lines by antibody against epidermal growth factor receptor promoting formation of ErbB2/ErbB3 heterodimers."</p> <p>Author(s):Maegawa M,Takeuchi K,Funakoshi E,Kawasaki K,Nishio K,Shimizu N,Ito F</p> <p>PubMed Article URL:http://dx.doi.org/10.1158/1541-7786.MCR-06-0303</p>
2 Immunohistochemistry References	
Species / Dilution	Summary
Human / Not Cited	<p>MA5-12675 was used in immunohistochemistry to study the mechanism for the resistance of MET oncogene-addicted gastric cancer cells against MET inhibitors</p> <p>Molecular cancer therapeutics (2008; 7: 3499)</p> <p>"HER kinase activation confers resistance to MET tyrosine kinase inhibition in MET oncogene-addicted gastric cancer cells."</p> <p>Author(s):Bachleitner-Hofmann T,Sun MY,Chen CT,Tang L,Song L,Zeng Z,Shah M,Christensen JG,Rosen N,Solit DB, Weiser MR</p> <p>PubMed Article URL:http://dx.doi.org/10.1158/1535-7163.MCT-08-0374</p>

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	MA5-12675 was used in immunohistochemistry to identify the effects of the epidermal growth factor receptor 2 and the protein tyrosine kinase 6 in relation to breast cancer treatment
Human / Not Cited	<p>Molecular oncology (2015; 9: 282)</p> <p>"Additive impact of HER2-/PTK6-RNAi on interactions with HER3 or IGF-1R leads to reduced breast cancer progression in vivo."</p> <p>Author(s):Falkenberg N,Anastasov N,Höfig I,Bashkueva K,Lindner K,Höfler H,Rosemann M,Aubele M</p> <p>PubMed Article URL:http://dx.doi.org/10.1016/j.molonc.2014.08.012</p>

6 Immunocytochemistry References

Species / Dilution	Summary
	<p>MA5-12675 was used in immunocytochemistry to study the effect of spontaneous and pronase-induced HER2 truncation on the trastuzumab binding capacity of breast cancer tissues and cell lines</p>
Human / 1:100	<p>The Journal of pathology (2013; 229: 390)</p> <p>"Spontaneous and pronase-induced HER2 truncation increases the trastuzumab binding capacity of breast cancer tissues and cell lines."</p> <p>Author(s):Recupero D,Daniele L,Marchiò C,Molinaro L,Castellano I,Cassoni P,Righi A,Montemurro F,Sismondi P,Biglia N, Viale G,Risio M,Sapino A</p> <p>PubMed Article URL:http://dx.doi.org/10.1002/path.4074</p>
Not Applicable / 1:40	<p>MA5-12675 was used in proximity ligation assay to research p21 expression and HER2/HER3 heterodimers and prediction of adjuvant trastuzumab response in HER2+ breast cancer</p> <p>Breast cancer research and treatment (2014; 145: 33)</p> <p>"HER2/HER3 heterodimers and p21 expression are capable of predicting adjuvant trastuzumab response in HER2+ breast cancer."</p> <p>Author(s):Green AR,Barros FF,Abdel-Fatah TM,Moseley P,Nolan CC,Durham AC,Rakha EA,Chan S,Ellis IO</p> <p>PubMed Article URL:http://dx.doi.org/10.1007/s10549-014-2925-7</p>
Human / Not Cited	<p>MA5-12675 was used in immunocytochemistry, immunohistochemistry, and western blot to study the value of the expression and dimerization patterns of EGFR, HER2 and HER3 in esophageal cancer histotypes for guiding targeted anti-EGFR and -HER2 therapy</p> <p>International journal of cancer (2014; 135: 1517)</p> <p>"EGFR, HER2 and HER3 dimerization patterns guide targeted inhibition in two histotypes of esophageal cancer."</p> <p>Author(s):Fichter CD,Timme S,Braun JA,Gudernatsch V,Schöpflin A,Bogatyreva L,Gedder H,Faller G,Klimstra D,Tang L, Hauschke D,Werner M,Lassmann S</p> <p>PubMed Article URL:http://dx.doi.org/10.1002/ijc.28771</p>
Rat / Not Cited	<p>MA5-12675 was used in immunocytochemistry and western blot to study the role of ErbB4 in regulating fetal surfactant phospholipid synthesis in primary fetal rat type II cells</p> <p>American journal of physiology. Lung cellular and molecular physiology (2007; 293: L429)</p> <p>"ErbB4 regulates fetal surfactant phospholipid synthesis in primary fetal rat type II cells."</p> <p>Author(s):Zscheppang K,Liu W,Volpe MV,Nielsen HC,Dammann CE</p> <p>PubMed Article URL:http://dx.doi.org/10.1152/ajplung.00451.2006</p>
Mouse / Not Cited	<p>MA5-12675 was used in immunocytochemistry to study erbB receptor dimerization, localization, and co-localization in mouse lung type II epithelial cells</p> <p>Pediatric pulmonology (2006; 41: 1205)</p> <p>"ErbB receptor dimerization, localization, and co-localization in mouse lung type II epithelial cells."</p> <p>Author(s):Zscheppang K,Korenbaum E,Bueter W,Ramadurai SM,Nielsen HC,Dammann CE</p> <p>PubMed Article URL:http://dx.doi.org/10.1002/ppul.20518</p>
Non-human primate / Not Cited	<p>MA5-12675 was used in Western Blotting to investigate phosphoinositide 3-kinase-dependent signalling pathways activated by the ErbB2/ErbB3 co-receptor in COS7 cells.</p> <p>The Journal of biological chemistry (2001; 276: 42153)</p> <p>"Heregulin-dependent activation of phosphoinositide 3-kinase and Akt via the ErbB2/ErbB3 co-receptor."</p> <p>Author(s):Hellyer NJ,Kim MS,Koland JG</p> <p>PubMed Article URL:http://dx.doi.org/10.1074/jbc.M102079200</p>

1 Neutralization References

Species / Dilution	Summary
	<p>MA5-12675 was used in blocking or activating experiment to study prognostic value of HER2:HER2 and HER2:HER3 protein-protein interactions in breast cancer</p>
Human / 1:200	<p>Breast cancer research and treatment (2012; 132: 463)</p> <p>"In situ detection of HER2:HER2 and HER2:HER3 protein-protein interactions demonstrates prognostic significance in early breast cancer."</p> <p>Author(s):Spears M,Taylor KJ,Munro AF,Cunningham CA,Mallon EA,Twelves CJ,Cameron DA,Thomas J,Bartlett JM</p> <p>PubMed Article URL:http://dx.doi.org/10.1007/s10549-011-1606-z</p>

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