

ZETA Corporation

Target-Validated and Characterized IVD Antibodies for Pathology and Immunotherapy

PRODUCT FOCUS -- Breast Cancer

Breast Cancer Awareness Month, October 2021. 1 in 8 women in the U.S. will be diagnosed with breast cancer in her lifetime. In 2021, ~280,000 new cases of invasive breast cancer will be diagnosed in the U.S. as well as 49,290 new cases of non-invasive (*in situ*) breast cancer. A biopsy is the only diagnostic procedure that can definitely determine if the suspicious area is cancerous. 63% of breast cancer cases are diagnosed at a localized stage for which the 5-year survival rate is 99%. (nationalbreastcancer.org)

Zeta Corporation offers RAbMono™ (Rabbit Monoclonal) IVD antibodies researched and developed for the anatomic pathology market for Immunohistochemistry. Zeta is incorporating highly sensitive technology to develop many of these primary antibodies that are target-validated and characterized for IHC on FFPE tissue sections. Zeta provides over 300 RAbMono™ (Rabbit Monoclonal) and MonoMAb™ (Mouse Monoclonal) IVD antibodies for cancer screening and diagnosis.

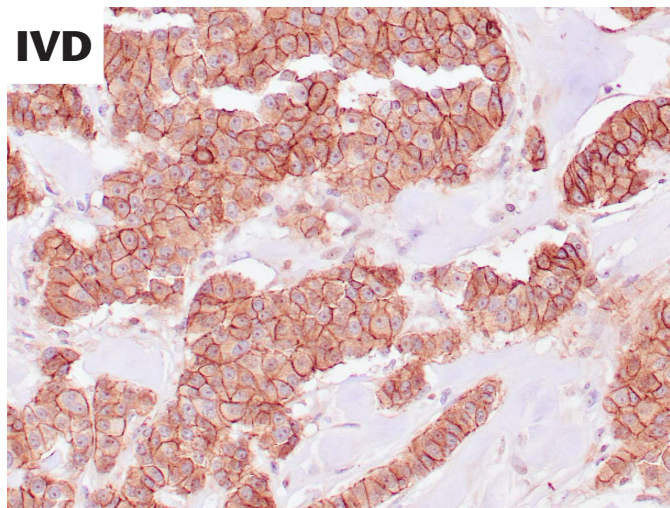
E-cadherin Mouse Monoclonal Antibody

Anti-mouse: Clone ZM63, Cat # Z2373

Recognizes a protein of 120-80kDa, identified as E-cadherin. Cadherins comprise a family of Ca²⁺-dependent adhesion molecules that function to mediate cell-cell binding critical to the maintenance of tissue structure and morphogenesis. The classical cadherins, E-, N- and P-cadherin, consist of large extracellular domains characterized by a series of five homologous NH₂ terminal repeats. The relatively short intracellular domains interact with a variety of cytoplasmic proteins, such as β -catenin, to regulate cadherin function.

E-cadherin plays an important role in epithelial cell adhesion. A decreased expression of E-cadherin is associated with metastatic potential and poor prognosis in breast cancer, prostate and esophageal cancer. In combination with p120 Catenin, it is useful for the differentiation between ductal (E-cadherin +) and lobular (E-cadherin -) breast carcinomas. It may also help in diagnosis of mesothelioma.

IVD



Human infiltrating breast carcinoma stained with anti-E-cadherin antibody (Clone ZM63)

References:

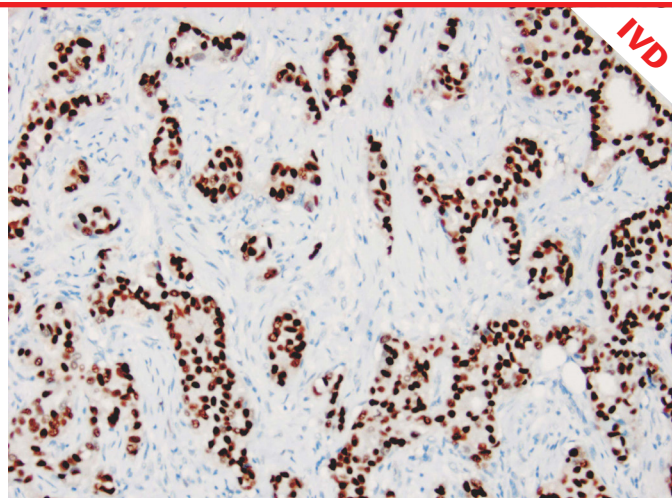
1. Karayiannakis AG, *et al.* Hepatogastroenterology.1998; 45:2437-42.
2. Abutaily AS, *et al.* J Clin Pathol. 2002; 55:662-8.
3. Dabbs DJ, *et al.* Am J Surg Pathol. 2007; 31:427

All antibodies are offered in different format and size with the Suffix after the Catalog #s; "L", "S" & "T" for Concentrated antibodies in 1.0 ml, 0.5 ml & 0.1 ml sizes and Suffix "P" for Ready To Use (RTU) in 7 ml.

Estrogen Receptor (ER) Rabbit Monoclonal Antibody

Anti-rabbit: Clone ZR2, Cat # Z2021

Recognizes a protein of 67kDa, which is identified as estrogen receptor (ER) alpha. The ER gene consists of more than 140kb of genomic DNA divided into 8 exons, being translated into a protein with six functionally discrete domains, labeled A through F. This antibody strongly stains the nucleus of epithelial cells in breast carcinomas. The ER is an important regulator of growth and differentiation in the mammary gland. Presence of ER in breast tumors indicates an increased likelihood of response to antiestrogen (e.g. tamoxifen) therapy.



Human normal breast tissue stained with ER antibody (Clone ZR2)

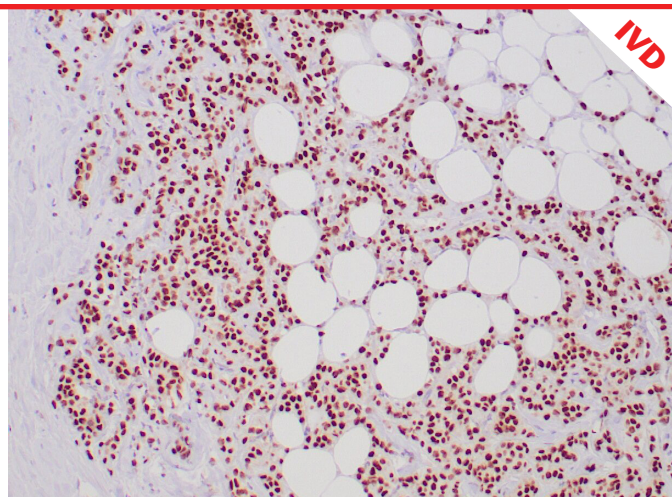
References:

1. Cheang MC, *et al.* J Clin Oncol. 2006; 24:5637-44.
2. Rossi S, *et al.* Am J Clin Pathol. 2005; 124:295-302.
3. Cano G, *et al.* Diagn Cytopathol. 2003; 29:207-11.

GATA-3 Rabbit Monoclonal Antibody

Anti-rabbit: Clone ZR65, Cat # Z2375

GATA-3 (GATA binding protein 3) is a transcription factor that in humans is encoded by the GATA3 gene. The GATA-3 transcription factor is critical for the embryonic development of various tissues as well as for inflammatory and hormonal immune responses. This 50 kDa nuclear protein regulates the development and subsequent maintenance of a variety of human tissues, including hematopoietic cells, skin, kidney, mammary gland, and the central nervous system. Among several other roles, GATA-3 involved in luminal cell differentiation in the mammary gland and appears to control a set of genes involved in the differentiation and proliferation of breast cancer. The expression of GATA-3 is associated with the expression of estrogen receptor-alpha (ER) in breast cancer. GATA-3 has been shown to be a novel marker for bladder cancer.



Human urothelial carcinoma stained with anti-GATA3 (Clone ZR65)

References:

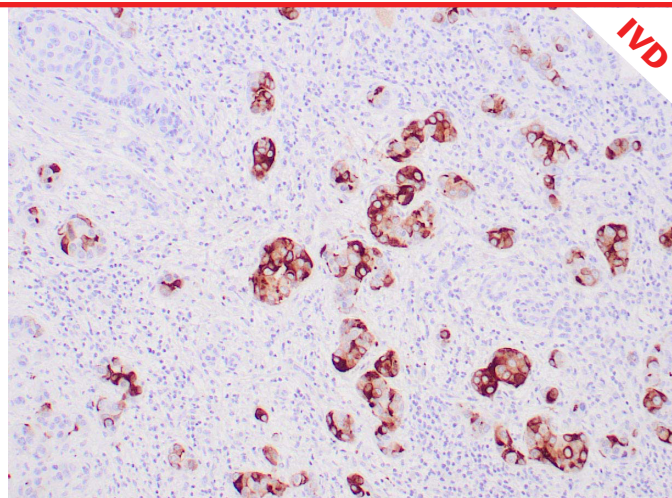
1. Higgins JP, *et al.* Am J Surg Pathol. 2007; 31:673-680.
2. Liu H, *et al.* Am J Clin Pathol. 2012; 138:57-64.
3. Joulin V, *et al.* EMBO J. 1991; 10: 1809-16.

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GCDFP-15 Mouse Monoclonal Antibody

Anti-mouse: Clone ZM23, Cat # Z2345

It recognizes a protein of 15kDa, identified as Gross cystic disease fluid protein 15 (GCDFP-15). It is a major protein component of benign breast gross cysts. It is a known marker of breast cancer, as it is found in approximately 50% of all breast cancer specimens. GCDFP-15, also known as PIP, for prolactin inducible protein, is a prolactin and androgen-controlled protein. This antibody is useful in the identification of metastatic breast carcinoma, or fluid analysis.



Human breast tissue stained with anti-GCDFP-15 antibody (Clone ZM23)

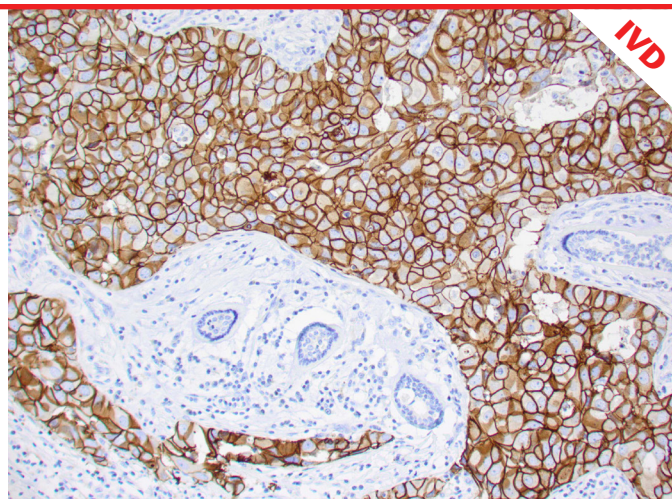
References:

1. Wich MR, *et al.* Hum Pathol. 1989; 20:281-7.
2. Tornos C, *et al.* Am J Surg Pathol. 2005; 29:1482-9.
3. Takeda Y, *et al.* Arch Pathol Lab Med. 2008; 132:239-43.

Her-2/neu Rabbit monoclonal Antibody

Anti-rabbit: Clone ZR5, Cat # Z2005

c-erbB-2 is a receptor tyrosine kinase of the c-erbB family. It is closely related in structure to the epidermal growth factor receptor. c-erbB-2 oncoprotein is detectable in a proportion of breast and other adenocarcinomas, as well as transitional cell carcinomas. In the case of breast cancer, expression determined by immunohistochemistry has been shown to be associated with poor prognosis.



Human breast infiltrating ductal carcinoma stained with anti-Her-2/neu antibody (Clone ZR5)

References:

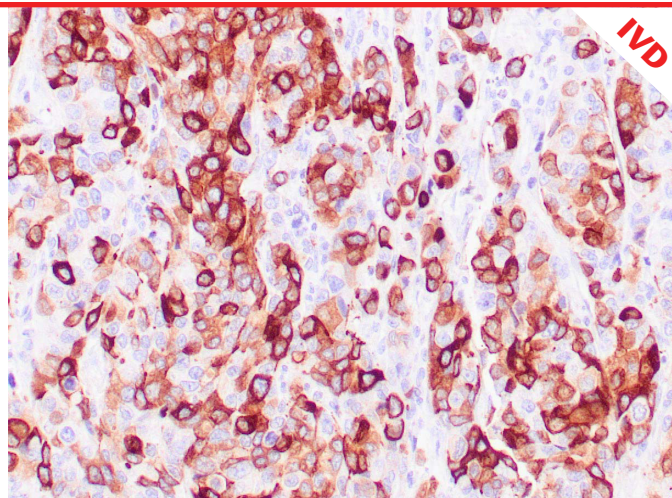
1. Suthipintawong C, *et al.* Diagn Cytopathol. 1997; 17:127-33.
2. Alexiev BA, *et al.* Gen Diagn Pathol. 1997; 142:271-9.
3. Fernández Aceñero MJ, *et al.* Gen Diagn Pathol. 1997; 142:289-96.

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Mammaglobin Mouse Monoclonal Antibody

Anti-mouse: Clone ZM193, Cat # Z2506

Mammaglobin is a 93-amino acid glycoprotein with homology to other secretoglobin-uteroglobin family members. It was originally identified as a breast cancer restricted biomarker by differential screening. Mammaglobin related to secretoglobin family includes human uteroglobin and lipophilin. Mammaglobin antibody stains cytoplasm of normal breast epithelial cells as well as primary and metastatic breast carcinomas. Mammaglobin expression is absent in prostate, kidney, colon, rectum, small intestine, stomach, pancreas, lung, and thyroid tissues. Mammaglobin may be used as part of an immunohistochemical panel for determination of metastatic breast carcinoma and tumor of unknown primary origin.



Human breast carcinoma stained with anti-Mammaglobin antibody (Clone ZM193)

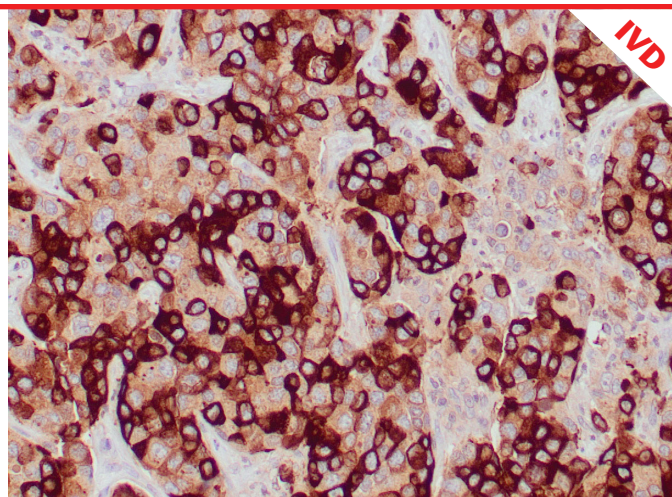
References:

1. Fleming TP, et al. Ann N Y Acad Sci. 2000; 923:78-89.
2. Bhargava R, et al. Am J Clin Pathol. 2007; 127:103-13.
3. Wang Z, et al. Int J Clin Exp Pathol. 2009; 2:384-9.

Mammaglobin Antibody Cocktail

Anti-mouse: Clones 304-1A5 + ZM193, Cat # Z2517

Mammaglobin is a breast-associated glycoprotein distantly related to secretoglobin family that includes human uteroglobin and lipophilin. Unlike other secretoglobin family members, mammaglobin mRNA expression is breast specific, which has been shown to be a very sensitive marker of occult breast cancer cells in sentinel lymph nodes and peripheral blood. By paraffin immunohistochemistry, the overall sensitivity of mammaglobin for breast cancers was reported about 80%. When combined with other breast-restricted markers such as GCDFP-15, an overall sensitivity of 84% could be achieved. Mammaglobin can play a contributing role in the identification of primary sites of carcinomas presenting at metastatic sites.



Human breast carcinoma stained with anti-Mammaglobin antibody cocktail

References:

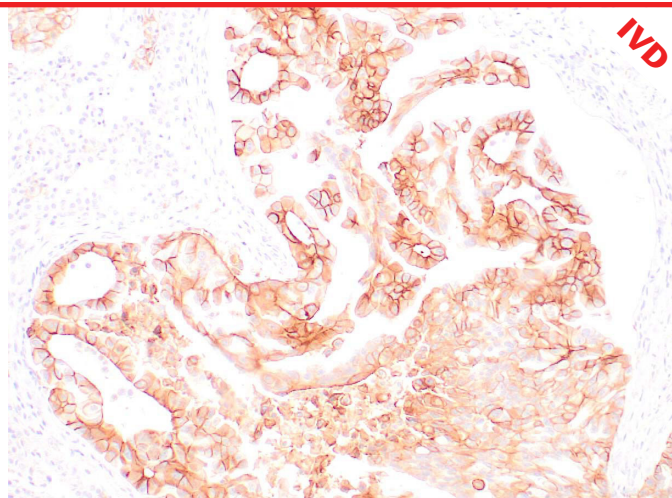
1. Fleming TP, et al. Ann N Y Acad Sci. 2000; 923:78-89.
2. Bhargava R, et al. Am J Clin Pathol. 2007; 127:103-13.
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PD-L1 Rabbit Monoclonal Antibody

Anti-rabbit: Clone ZR3, Cat # Z2002

Programmed cell death ligand 1 (PD-L1) also known as cluster of differentiation (CD274) or B7 homolog1 (B7-H1) is a type 1 transmembrane protein involved in the regulation of cellular and humoral immune responses. The interaction of PD-L1 with its receptor PD-1 provides both stimulatory and inhibitory signals in regulating T cell activation and tolerance during pregnancy, tissue allografts, autoimmune disease and malignant transformation. The binding of PD-L1 to PD-1 induces apoptosis or exhaustion in activated T cells, and blockade of this interaction has been shown to enhance the antitumor activity of T cells. PD-L1 is frequently over expressed in placenta, and many human tumors such as melanoma, diffuse large B-cell lymphoma, and carcinomas of the lung, bladder, breast, kidney and colon.



Human lung adenocarcinoma stained with anti-PD-L1 (Clone ZR3)

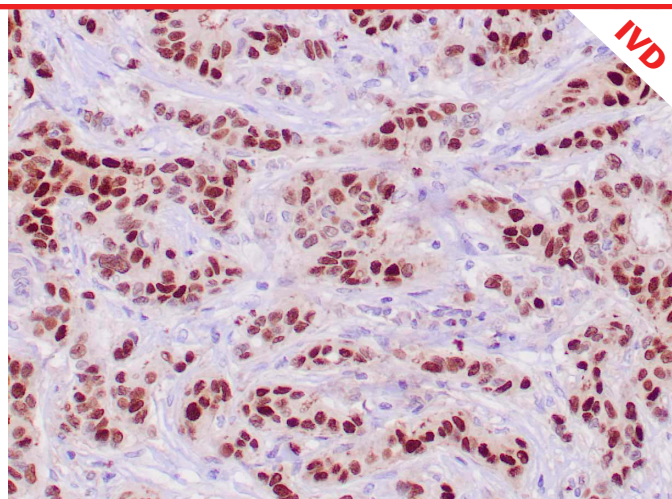
References:

1. Fleming TP, *et al.* Ann N Y Acad Sci. 2000; 923:78-89.
2. Bhargava R, *et al.* Am J Clin Pathol. 2007; 127:103-13.
3. Wang Z, *et al.* Int J Clin Exp Pathol. 2009; 2:384-9

Progesterone Receptor (PR) Rabbit Monoclonal Antibody

Anti-rabbit: Clone ZR4, Cat # Z2023

The progesterone receptor (PR) is an estrogen regulated protein. It has been proposed that expression of PR determination indicates a responsive estrogen receptor (ER) pathway, and therefore, may predict likely response to endocrine therapy in human breast cancer. A number of studies have shown that PR determination provides supplementary information to ER, both in predicting response to endocrine therapy and estimating survival. PR has proved superior to ER as a prognostic indicator in some studies.



Human breast carcinoma stained with anti-PR antibody (Clone ZR4)

References:

1. Tokito T, *et al.* Eur J Cancer. 2016; 6;55:7-14.
2. Kakavand H, *et al.* Mod Pathol. 2015; 28:1535-44.
3. Xia B, *et al.* Mol Cancer Ther. 2015; 14:847-56.

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