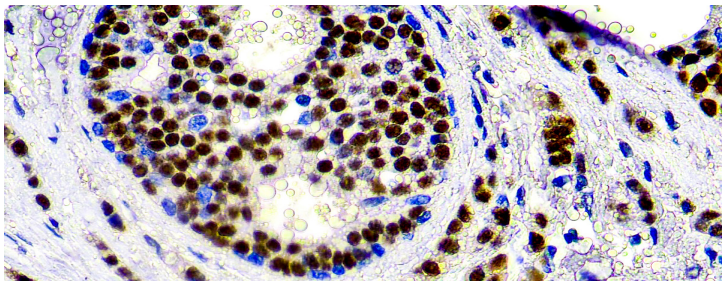
Diagnostic BioSystems

BREAST Cancer

Antibody Panel

Breast Cancer

For diagnosis of almost all breast abnormal proliferations, especially breast carcinoma (BrCa), immunohistochemically it starts with the detection of estrogen receptor (ER), progesterone receptor (PR), human epidermal growth factor receptor-2 (HER2) and Ki67 cell proliferation to differentiate the type of breast carcinomas. In general, breast carcinomas are classified into several different intrinsic subtypes including luminal A BrCa (ER+, PR+, HER2-, Ki67-), luminal B BrCa (ER+, PR+, HER2-, Ki67+), HER2 enriched BrCa (ER-, PR-, HER2+, Ki67+), normal-like BrCa (ER+, PR+, HER2-, Ki67-), and basal-like BrCa (ER-, PR-, HER2-, Ki67+, CK5/6+, EGFR+, triple negative breast carcinoma, TNBrCa). Ki-67 protein is associated with cell proliferation in which the increased expression of Ki-67 leads to a higher rate of cell division.



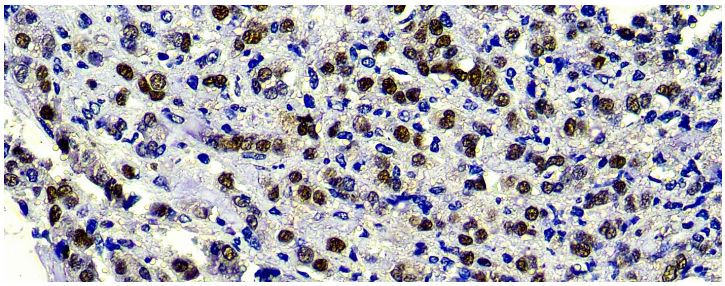
Estrogen Receptor (ER)

Cat. No: RMAB001, RMAB001-01, RMAB001-05, RMPD001

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: SP1

Estrogen receptor, Rabbit monoclonal antibody (clone SP1) IHC is an aid for assessing the breast cancer origin predicting the prognosis and outcomes of the breast carcinoma and directing patient management.



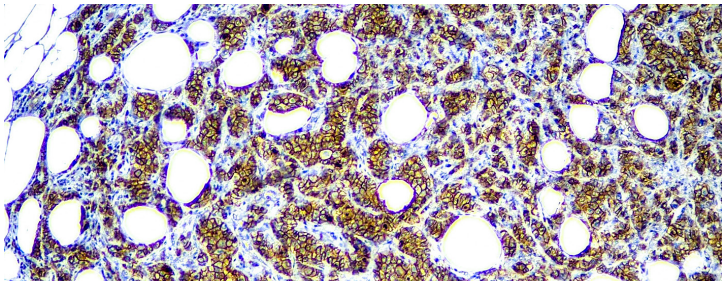
Progesterone Receptor (PR)

Cat. No: RMAB002, RMAB002-01, RMAB002-05, RMPD002

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: SP2

Progesterone receptor, Rabbit monoclonal antibody (clone SP2) IHC identifies the breast cancer origin and provides information of prognosis and management of the breast carcinoma.



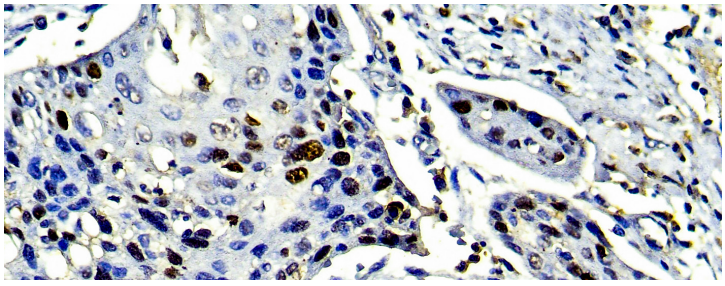
Her2/neu (c-erbB-2)

Cat. No: RP006, RP006-01, RP006-05, PDR003

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: Rabbit

In about 15%-20% of patients with breast carcinoma Her2/neu (c-erbB-2/Oncoprotein) is overexpressed. Her2-positive breast cancer is highly invasive, prone to recurrence and metastasis.



Ki-67

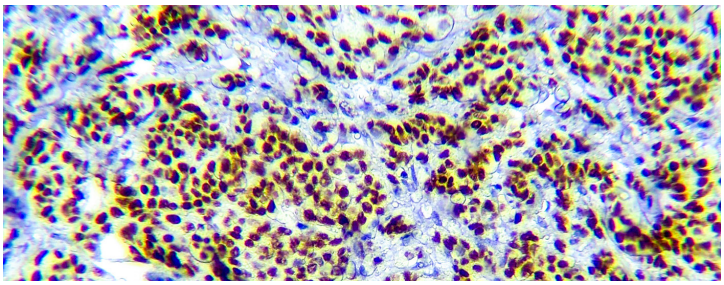
Cat. No: RP026, RP026-01, RP026-05, PDR048

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: Rabbit

Ki-67 is a cell proliferation index marker. It has been proposed as a useful clinical marker for breast cancer subtype classification, prognosis, and prediction of therapeutic response.

GATA3 is a transcription factor involved in the differentiation of many tissue types including the breast luminal epithelial cells. GATA3 is a superior marker for ER+ breast carcinoma to Gross Cystic Disease Fluid Protein 15 (GCDFP-15) and Mammaglobin (MGB) with labelling consistently reported in over 90% of ER+breast carcinomas. In addition, GATA3 is sensitive for TNBrCa with labelling commonly reported in over 50% - 83% and has greater utility than GCDFP-15 and mammaglobin (MGB) in this context. GATA3 also displays nuclear rather than cytoplasmic labelling which can be easier to interpret and shows strong and diffuse labelling in nearly all ER+ breast carcinomas. GATA3 labels T-lymphocytes which serve as useful internal controls in GATA3 negative tumors. GATA3 is not specific for breast carcinoma however, labels urothelial carcinomas, squamous cell carcinomas, and mesotheliomas with labelling in smaller numbers of pancreatic adenocarcinomas, lung adenocarcinomas, and others.



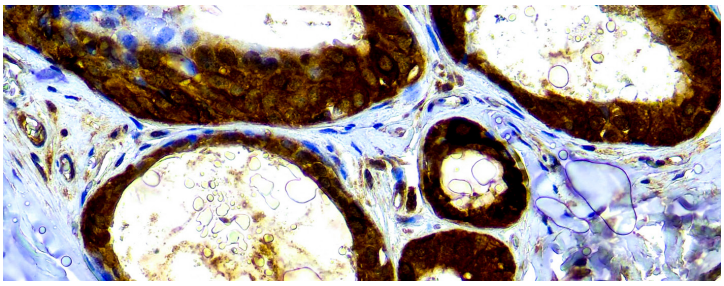
GATA3

Cat. No: Mob564, Mob564-01, Mob564-05, PDM564

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: L50-823

GATA3 has been reported to be expressed in all histologic subtypes of breast carcinoma such as invasive ductal carcinomas, micropapillary carcinomas, invasive lobular carcinomas, pleomorphic lobular carcinomas, mucinous carcinomas, and breast carcinomas with endocrine differentiation.



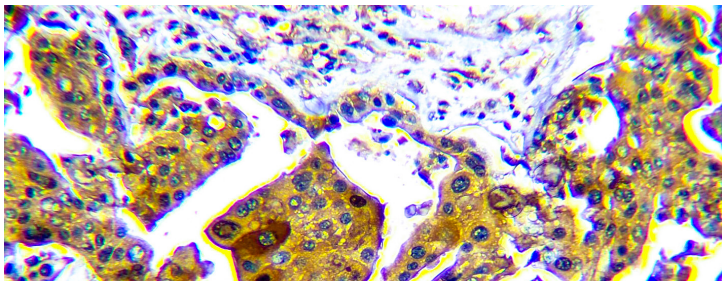
Mammaglobin A

Cat. No: RMAB036, RMAB036-01, RMAB036-05, RMPD036

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: EPR 9092

Mammaglobin-A is a mammary marker frequently used for diagnosis of breast carcinoma, primary as well as metastatic breast carcinoma whose primary origin cannot be easily identified.



GCDFP-15

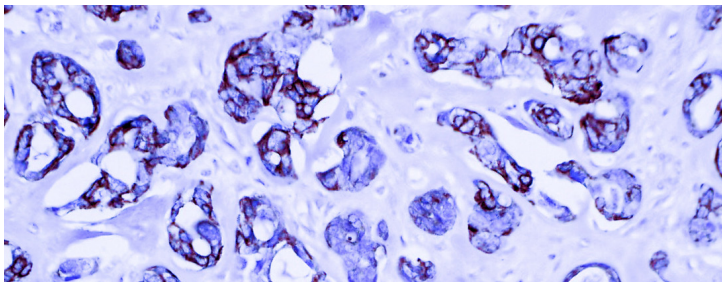
Cat. No: Mob526, Mob526-01, Mob526-05, PDM261

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: DBM15.52

GCDFP-15 is an IHC marker frequently used to evaluate mammary differentiation in females and demonstrate a potential mammary origin of metastatic carcinoma of unknown primary origin.

About 15%-20% of breast carcinoma are characterized with carcinoma cells not being immunostained by antibodies against ER, PR, and Her2/neu (c-erbB-2/Oncoprotein) and referred as TNBrCa or basal-like breast carcinoma. TNBrCa usually has poorer prognosis and are associated with premenopausal African American women, BRCA1 mutations and higher propensity for brain metastases. IHC markers are often used for identifying basal-like breast carcinoma which include basal cytokeratin such as CK5, CK5/6, CK14, CK17 and EGFR. In particular, the positivity of CK5 and EGFR can be helpful in diagnosing ER-/PR-/HER2-, poorly differentiated or undifferentiated invasive carcinomas of the breast as TNBrCa, especially in the core biopsy setting in which in situ lesions may be absent. The transcription factor SOX10 labels myoepithelial cells of the breast and salivary glands with corresponding labelling in a subset of breast and salivary gland neoplasms with myoepithelial or basal cell like differentiation. SOX10 rarely labels ER+ BrCa but labels 66–74% of TNBrCa and can be useful even when GATA3 labelling is negative. SOX10 displays nuclear labelling. Peripheral nerve Schwann cells can serve as positive internal controls. However, the main diagnostic pitfall is metastatic melanoma. TRPS1 (trichorhinophalangeal syndrome type 1 is a novel biomarker to aid in the identification of ER+, HER2+ BrCa, TNBrCa and differentiation of invasive BrCa and metastatic BrCa (TRPS1+) from carcinomas of urothelial origin and other origins such as pulmonary, GI, pancreas etc. (TRPS1-). It is very useful in the differentiation between TNBrCa from melanoma (TRPS1-).



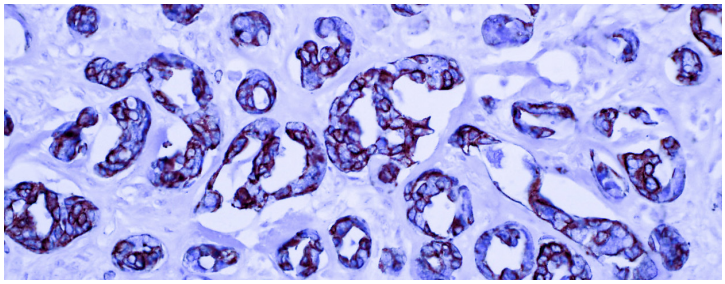
Cytokeratin 5

Cat. No: Mob361, Mob361-01, Mob361-05, PDM139

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: XM26

Cytokeratin 5 immunostaining on breast carcinoma. About 15%-20% of breast carcinoma are characterized with no expression of ER, PR, Her2/neu(c-erbB-2/Oncoprotein) and referred to as TNBrCa or basal like breast carcinoma. Note: Cytokeratin 5 IHC labels this TNBrCa in a diffuse cytoplasmic staining pattern with a perinuclear enhancement.



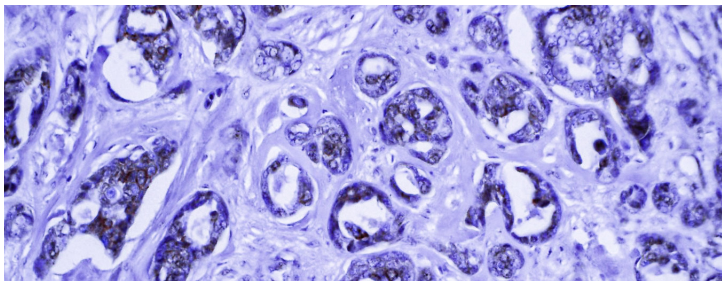
Cytokeratin 14

Cat. No: Mob186, Mob186-01, Mob186-05, PDM138

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: LL002

Cytokeratin 14 immunostaining on breast carcinoma. About 15%-20% of breast carcinoma are characterized with no expression of ER, PR, Her2/neu(c-erbB-2/Oncoprotein) and referred to as TNBrCa or basal like breast carcinoma. Note: Cytokeratin 14 IHC labels this TNBrCa in a diffuse cytoplasmic staining pattern with a perinuclear enhancement.



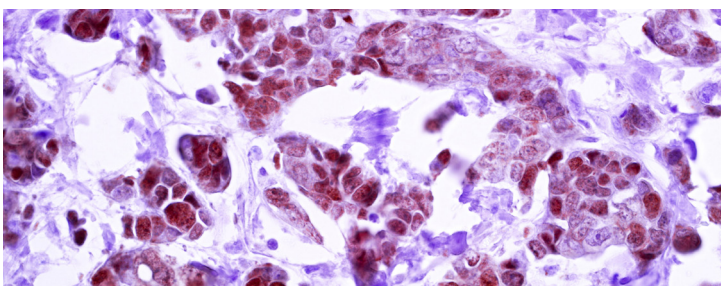
EGFR

Cat. No: Mob461, Mob461-01, Mob461-05, PDM226

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: 31G7

EGFR immunostaining on breast carcinoma. Note: EGFR antibody IHC labels this TNBrCa in a cytoplasmic staining pattern with a perinuclear enhancement.



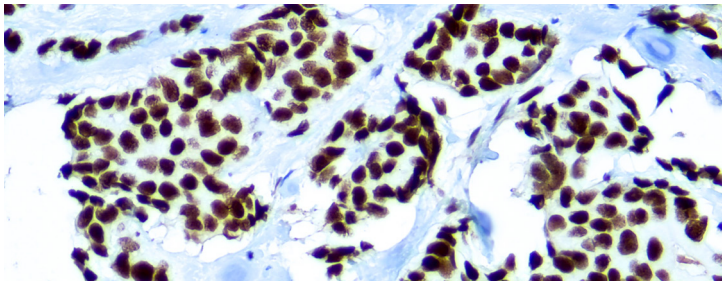
SOX10

Cat. No: Mob565, Mob565-01, Mob565-05, PDM565

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: 20B7

SOX10 immunostaining on breast carcinoma. Note: SOX10 antibody IHC labels this TNBrCa in a nuclear staining pattern.



TRPS1

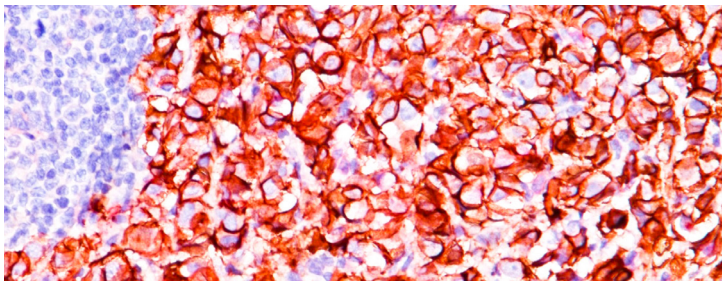
Cat. No: RMAB615, RMAB615-01, RMAB615-05, RMPD615

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: EPR16171

TRPS1 immunostaining on breast carcinoma. Note: TRPS1 antibody IHC labels this TNBrCa in a nuclear staining pattern.

The distinction between ductal carcinoma and lobular carcinoma either in situ or invasive is usually based on morphology. However, cases with equivocal histomorphologic features have been encountered. IHC is a usual adjunct for accurate classification and differentiation.



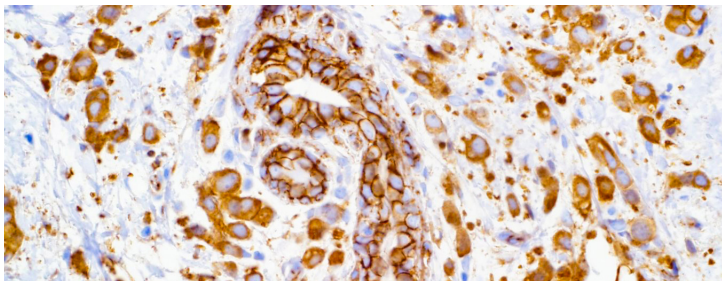
E-Cadherin

Cat. No: Mob550, Mob550-01, Mob550-05, PDM182

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: SPM471

p120 catenin/E-cadherin double staining showing invasive ductal carcinoma with membranous labelling with the antibodies of p120 catenin (red) and E-cadherin (brown).



Beta Catenin (p120 Catenin)

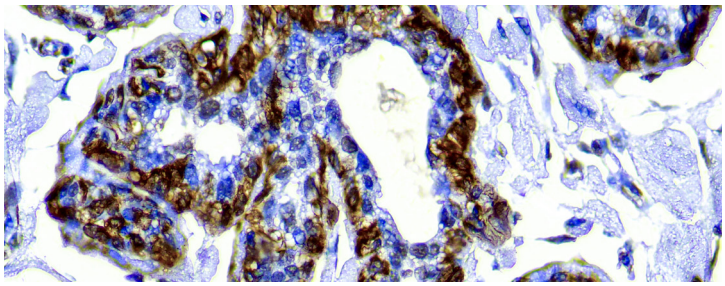
Cat. No: Mob529, Mob529-01, Mob529-05, PDM529

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: DBM15.55

Beta Catenin (p120 Catenin)/E-Cadherin double stain showing benign ducts stained in membranous pattern at the center and invasive lobular carcinoma stained in cytoplasm at periphery generating a targetoid appearance.

Histologically, the hallmark of invasive breast carcinoma is the lack of myoepithelial cells (MECs) which functionally are a hybrid of both smooth muscle ("myo," with contractile property) and epithelial cells (with cadherin-mediated cell-cell junctions). Immunohistochemically MECs express filamentous smooth muscle actin (SMA) and smooth muscle myosin heavy chain (SMMHC), intermediate filaments (the epithelial cytokeratins), and some specific markers such as CD10, p40, p63, etc. These biomarkers are very helpful in the differentiation between malignant invasive breast carcinomas versus benign florid proliferation of ducts or lobules.



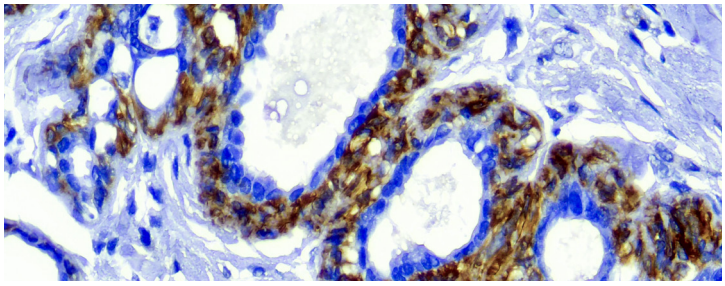
Actin Alpha Smooth Muscle (SMA)

Cat. No: Mob001, Mob001-01, Mob001-05, PDM003

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: 1A4

SMA immunostaining on breast tissue. Note: SMA antibody IHC labels myoepithelial cells surrounding the florid proliferated ducts.



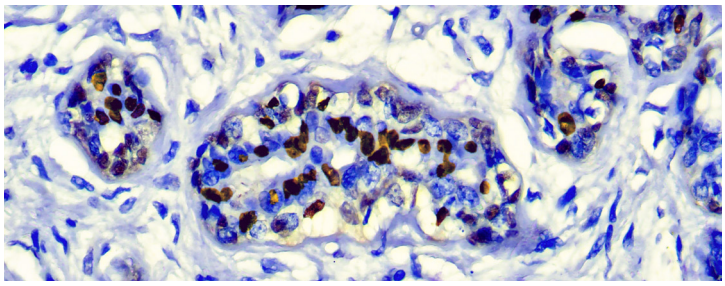
Calponin

Cat. No: Mob345, Mob345-01, Mob345-05, PDM219

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: CALP

Calponin immunostaining on breast tissue. Note: Calponin antibody IHC labels myoepithelial cells surrounding the florid proliferated ducts.



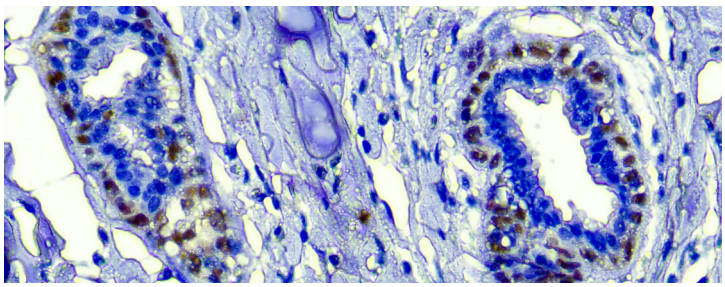
p40

Cat. No: RP163, RP163-01, RP163-05, PDR055

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: Rabbit

p40 immunostaining on breast tissue. Note: p40 antibody IHC labels the nuclei of myoepithelial cells surrounding the florid proliferated ducts.



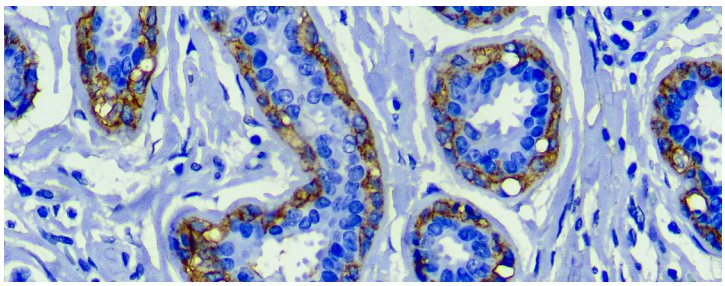
p63

Cat. No: RMAB086, RMAB086-01, RMAB086-05, RMPD086

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: DBR16.1

p63 immunostaining on breast tissue. Note: p63 antibody IHC labels the nuclei of myoepithelial cells surrounding the florid proliferated ducts.



CD10

Cat. No: Mob240,Mob240-01, Mob240-05, PDM107

Pack Size: 1 ml, 0.1 ml, 0.5 ml, 6 ml

Clone: 56C6

CD10 immunostaining on breast tissue. Note: CD10 antibody IHC labels myoepithelial cells surrounding the florid proliferated ducts.

Breast Cancer Panel Markers

Product Name	Product Type	Cat. No	Clone
Actin Alpha Smooth Muscle (SMA)		Mob001, PDM003	1A4
CA15-3		Mob549, PDM549	DBMM1
Beta Catenin (p120 Catenin)		Mob529, PDM529	DBM15.55
Calponin-1		Mob345, PDM219	CALP
Cytokeratin 14		Mob186, PDM138	LL002
Cytokeratin 17		Mob127, PDM206	E3
Cytokeratin 18		Mob187, PDM164	DC-10
Cytokeratin 19		Mob274, PDM192	A53-B/A2.26
Cytokeratin 5/14		Mob433, PDM140	XM26+LL002
Cytokeratin 5/6		Mob362, PDM123	D5/16 B4
Cytokeratin 7		Mob057, PDM097	OV-TL 12/30
Cytokeratin 7		Mob563, PDM563	LP1K
Cytokeratin 8		Mob054, PDM117	35B β H11
Cytokeratin 8/18		Mob189, PDM070	5D3
E-Cadherin		Mob550, PDM182	SPM471
EGFR (Epithelial growth factor receptor)		Mob 461, PDM226	31G7
Epithelial Membrane antigen		Mob401, PDM204	E29
Estrogen Receptor (ER)		RMAB001, RMPD001	SP1
Estrogen Receptor (ER)		PDM048, Mob121	6F11
GATA3		Mob564, PDM564	L50-823
GCDFP-15 (Gross Cystic Disease Fluid Protein-15)		Mob526, PDM261	DBM15.52
Her2/neu (c-erbB-2/Oncoprotein)		RMAB008, RMPD008	SP3
Her2/neu (c-erbB-2/Oncoprotein)		RP006, PDR003	Rabbit
Ki67		RMAB004, RMPD004	SP6
Mammaglobin A		PDM544	304-1A5
p40		RP163, PDR055	Rabbit
p53		Mob082, PDM013	DO-7
p63		RMAB086, RMPD086	DBR16.1
Progesteron Receptor (PR)		RMAB002, RMPD002	SP2
Smooth muscle myosin (heavy chain), SMMHC		Mob467, PDM175	SMMS-1
SOX10		Mob565, PDM565	20B7
SOX10		RMAB077, RMPD077	EP268
TRPS1		RMAB615, RMPD615	EPR16171

Mouse Monoclonal= Rabbit Monoclonal= Rabbit Polyclonal=

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