



Cancer & Tumor Markers

Reagents for Assay Development

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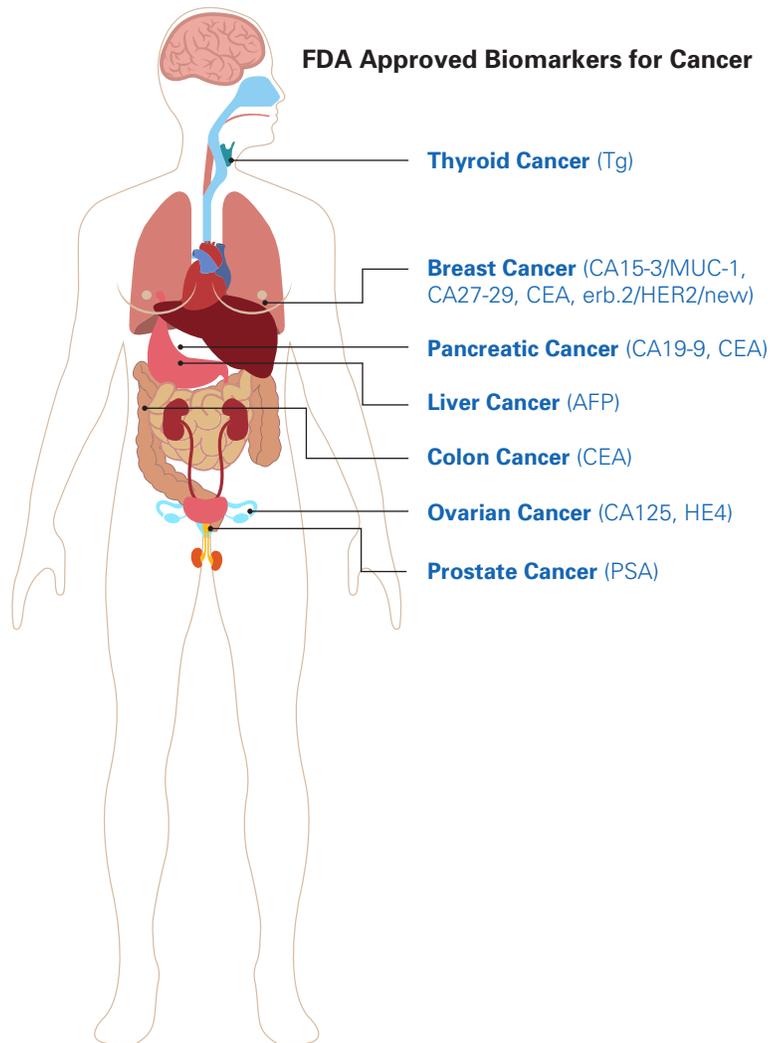
Cancer Diagnostics

Cancer is a leading cause of death worldwide. More than half of all cancer deaths each year are due to lung, stomach, liver, colorectal and female breast cancers. If recent trends in major cancers continue globally in the future, the burden of cancer will increase by 68% over the next 15 years. The high cancer mortality rates are primarily due to a delayed detection of the disease and differences in the policies on cancer screening between countries.

Early detection is the key focus of cancer diagnostics and an early diagnosis makes it possible to cure the disease completely and/or increase survival rates. However, the financial burden associated with the cost of managing and treating cancer is a growing concern. Non-invasive techniques such as serum immunoassays detecting specific tumor markers are highly sought after in order to minimize the costs associated with screening and monitoring the disease. They provide fast, cost-effective, and accurate cancer detection while providing a valuable aid to the clinician and increased comfort to the patient.

Cancer biomarkers (also called tumor markers) are proteins produced either by the tumor itself or by the body in response to the presence of cancer. They can be broadly classified into four groups: (1) screening and early detection, (2) diagnostic confirmation, (3) prognosis and prediction of therapeutic response, and (4) monitoring disease and recurrence.

Over the past decade, an improved understanding of carcinogenesis and tumor progression has revealed a large number of potential tumor markers. Some markers are associated with only one type of cancer, whereas others are associated with two or more cancer types. No “universal” tumor marker that can detect any type of cancer has been discovered.



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Company Overview



Meridian Life Science, Inc. is a leading large scale manufacturer of:

- Antibodies
- Viral antigens
- Recombinant proteins
- PCR enzymes
- Nucleotides
- Critical assay reagents

Meridian has been providing innovative life science solutions and building trusted partnerships for over 40 years. Meridian's focus is to offer products and services that help to advance the development of diagnostic assays and vaccine development.

- Commercial scale manufacturing of antigens and antibodies with protein purification expertise
- Full line of immunoassay reagents, including antigens, antibodies and blockers
- Large scale production of reagents for molecular assays
- Technical support with assay development experience
- Dedicated R&D and manufacturing teams
- Robust and mature Quality System

ISO certified



Extensive Capabilities and Services

Immunodiagnosics

- Antigen & Antibodies
- Recombinant Proteins
- Blocking Reagents

Molecular Diagnostics

- Nucleotides
- enzymes
- qPCR/PCR reagents
- NGS reagents

Contract Services

- Antigen & Antibodies
- Cell & Viral Banking
- PCR/qPCR Assay Development



Global Presence

MERIDIAN BIOSCIENCE, INC.

Parent Company | Founded in 1977 | Nasdaq: VIVO
Headquartered in Cincinnati, OH | 650+ Employees | Presence in 70+ Countries.

America

MEMPHIS, TN

Manufacturing & Sales
Viral Antigens
Recombinant Proteins
In Vitro Antibodies
HAMA Blocking Reagents

BILLERICA, MA

Manufacturing & Sales
LeadCare Diagnostic Product Line

BOCA RATON, FL

Manufacturing
Ascites Production
(in BALB/c or CAF1)

BOSTON, MA

Sales & Distribution

Europe

LONDON, UK

PCR Manufacturing & Sales
PCR /qPCR Molecular Reagents

LUCKENWALDE, GERMANY

Manufacturing
Large Scale Nucleotides
PCR enzymes

PARIS, FRANCE

EU Diagnostics Sales

WATERLOO, BELGIUM

EU Diagnostics Sales

MILAN, ITALY

EU Diagnostics Sales

Asia Pacific

SYDNEY, AUSTRALIA

Sales & Distribution
PCR R&D

SINGAPORE

Sales & Distribution

BEIJING, CHINA

Sales & Distribution
Wholly Owned
Subsidiary Office



Company Overview

- 3000+ products
- High specificity & sensitivity
- Antibody pairing
- Large lot sizes

Antigens & Antibodies

Infectious disease

ToRCH

- Toxo
- Rubella
- CMV
- HSV-1, 2

TROPICAL

- Nipah
- Dengue 1, 2, 3, 4
- Chikungunya
- Malaria
- Chagas
- Leishmaniasis
- Leptospirosis
- Newcastle disease
- Yellow Fever
- Zika
- Lyme disease
- Ebola

CHILDHOOD

- Mumps
- Rubeola
- EBV
- Coxsackie
- Rotavirus
- RSV
- Parvo B19
- VZV

STDs

- HAV
- HBV
- HCV
- HSV-1, 2
- HIV-1, 2
- HPV
- *Chlamydia*
- *Neisseria*
- Syphilis

RESPIRATORY

- RSV
- Influenza A,B
- Parainfluenza
- *Mycoplasma pneumoniae*
- *Chlamydia pneumoniae*
- *Legionella pneumophila*
- *Mycobacterium tuberculosis*
- *Streptococcus*
- *Staphylococcus*
- SARS Coronavirus
- Adenovirus

FOOD & WATER

- Hepatitis A
- *Campylobacter jejuni*
- *E. coli*
- *Legionella*
- *Salmonella*
- *Shigella*
- *Bacillus anthracis*
- *Clostridium*
- *Listeria*
- *Streptococcus*
- *Staphylococcus*
- *Giardia*
- *Cryptosporidium*

GASTROINTESTINAL

- Norovirus
- Astrovirus
- Adenovirus
- Rotavirus
- Astrovirus
- *Clostridium difficile*
- *Cryptosporidium*
- *Campylobacter*
- *E. coli*
- *Salmonella*
- *Giardia lamblia*
- *H. pylori*



Cancer

- PIVKA
- CA125
- CA15-3
- CA19-9
- CA72-4
- CA50
- CA242
- CEA
- Cyfra 21-1
- erbB-2/HER2
- AFP
- EGFR
- HE4
- NSE
- P53
- PMA
- PAP
- PSA
- PSMA
- S-100
- B2M
- Thyroglobulin

Immunoglobulins/Blockers

- TRU Block & IgM Diluent
- Animal IgGs – Bovine, Chicken, Goat, Mouse, Rabbit, Sheep
- Human IgA, IgG, IgM, IgE
- Kappa Light chain
- Lambda Light chain
- Goat Anti-Human IgG, IgM, IgA
- Goat Anti-Mouse IgG

Drugs of Abuse

- Amphetamine
- Barbitol
- Benzodiazepine
- Buprenorphine
- Cocaine
- Cotinine
- EDDP
- Fentanyl
- Ketamine
- K2
- MDMA (Ecstasy)
- Methadone
- Methamphetamine
- Morphine

Autoimmune

- Jo-1
- PCNA
- pANCA
- cANCA
- Sm Ag
- dsDNA
- La (SS-B)
- Ro (SS-A)
- Histone
- GMB
- C1q
- Scl-70
- B2-Gly-1
- Cathepsin G
- Calprotectin

Cardiac

- Troponin I, T
- Myoglobin
- BNP
- NT-proBNP
- CRP
- PCT
- CK-MB
- Apo A,B,E
- NSE
- FABP
- SAH
- Galectin-3
- Cystatin-C
- D-Dimer
- MPO
- Fibrinogen
- EGF
- sCD40L
- CD54
- Lp-PLA2
- PAPP-A
- Vitamin D
- Renin

Hormones

- LH, FSH, hCG, hGH
- AMH
- Cortisol, Estradiol
- Insulin, C-peptide
- Prolactin
- Progesterone
- PTH
- PAPP-A
- TSH, T4, T3, ACTH
- Thyroglobulin

- Norketamine
- Opium
- Oxycodone
- PCP
- Phenobarbital
- Propoxyphene
- THC

Allergens

- Animal
- Dust Mite
- Mold
- Pollen



Leading Products

Antibodies & Matched Pairs

Alpha Fetoprotein (AFP)

- M86304M** MAb (*Capture*), ELISA
M86641M MAb (*Detection*), ELISA
* Not cross reactive with human albumin.
MAM01-210 MAb (*Capture*), ELISA
MAM01-301 MAb (*Detection*), ELISA

Beta 2 Microglobulin (B2M)

- MCP17-301** MAb, ELISA & RIA
* Reacts with soluble B2M and B2M associated with cell-surface MHC Class I molecules and other membrane antigens.

CA15-3

- M86240M** MAb (*Capture*), ELISA
M01288M MAb (*Detection*), ELISA
* Epitope is located within the VNTR tandem repeat region of MUC1

CA125

- M86306M** MAb Group A (*Capture*), ELISA & WB
M86924M MAb Group B (*Detection*), ELISA & WB
M86306M MAb Group A (*Capture*), ELISA & WB
M86429M MAb Group B (*Detection*), ELISA & WB
* Both pairs detect OC125 (Group A) and M11 (Group B).

CA19-9

- M66107M** MAb (*Capture*), ELISA
M66106M MAb (*Detection*), ELISA
M66108M MAb (*Alternate Detection*), ELISA
M66106M MAb (*Capture/Detection*), ELISA
M66108M MAb (*Capture/Detection*), ELISA
* Abs can be used as capture or detection in a sandwich assay.
M01335M MAb, ELISA

CA72-4

- M01341M** MAb (*Capture*), ELISA
M01342M MAb (*Alternate Capture*), ELISA
M01340M MAb (*Detection*), ELISA

CEA

- MAM02-008** MAb (*Capture/Detection*), ELISA
MAM02-009 MAb (*Capture/Detection*), ELISA
* Abs can be used as capture or detection in a sandwich assay.
MAM02-009 MAb (*Capture*), ELISA
MAM02-881 MAb (*Detection*), ELISA
M01250M MAb (*Capture*), ELISA & IHC
M01246M MAb (*Detection*), ELISA & IHC
* Specific for CEA epitope specificity group I.

Cyfra 21-1 (Cytokeratin 19)

- M01300M** MAb, ELISA & WB
M01326M MAb, ELISA

Epidermal Growth Factor Receptor 2 (ERB2, HER2/NEU)

- M01296M** MAb, ELISA, reacts with peptide ILDV4 (dephosphorylated)
M01297M MAb, ELISA, reacts with peptide ILDV4 (phosphorylated)
M01298M MAb, ELISA, reacts with peptide ILDV2 (dephosphorylated)
M01299M MAb, ELISA, reacts with peptide ILDV2 (phosphorylated)

HE4

- M01323M** MAb (*Capture*), ELISA
M01320M MAb (*Detection*), ELISA
M01323M MAb (*Capture*), ELISA
M01321M MAb (*Detection*), ELISA

Human Hemoglobin (Fecal Occult Blood)

- H01348M** MAb (*Capture*), ELISA
H01349M MAb (*Detection*), ELISA
H01416M MAb (*Capture*), ELISA
H01369M MAb (*Detection*), ELISA
H01409M MAb (*Capture*), LF & Turbidimetry
H01410M MAb (*Detection*), LF & Turbidimetry

Neuron Specific Enolase (NSE)

- M86101M** MAb (*Capture/Detection*), ELISA
M86520M MAb (*Capture/Detection*), ELISA
* Abs can be used as capture or detection in a sandwich assay.

Pepsinogen I

- K01402M** MAb (*Capture*), ELISA & LF
K01403M MAb (*Detection*), ELISA & LF
K01406M MAb (*Capture*), ELISA & LF
K01407M MAb (*Detection*), ELISA & LF

Pepsinogen II

- K01404M** MAb (*Capture*), ELISA & LF
K01405M MAb (*Detection*), ELISA & LF

PIVKA-II

- M01344M** MAb (*Capture*), ELISA
M01343M MAb (*Detection*), ELISA

Prostate Specific Antigen (PSA) Free

- M92986M** MAb (*Capture*), ELISA
M92396M MAb (*Detection*), ELISA
* Not cross reactive to Albumin, AFP, CEA, PAP, CA125, CA19-9 or CA15-3.
M86506M MAb (*Capture/Detection*), ELISA & LF
M86806M MAb (*Capture/Detection*), ELISA & LF

Prostate Specific Antigen (PSA) Total

M66276M	MAb (<i>Capture</i>), ELISA & LF
M86506M	MAb (<i>Detection</i>), ELISA & LF
* Specific for epitope 5 and not cross reactive with human kallikrein 2.	
M01236M	MAb (<i>Capture</i>), ELISA & LF
M86506M	MAb (<i>Detection</i>), ELISA & LF

Prostate Specific Membrane Antigen (PSMA)

M20454M	MAb, ELISA & IFA
* Specific to the extracellular domain of PSMA.	

S-100 Beta

Q86006M	MAb (<i>Capture</i>), ELISA
Q86610M	MAb (<i>Detection</i>), ELISA
Q86003M	MAb (<i>Capture</i>), ELISA
Q86610M	MAb (<i>Detection</i>), ELISA
* Each capture is specific for alpha-beta and each detection for alpha-beta and beta-beta.	

Thyroglobulin

E01326M	MAb (<i>Capture</i>), ELISA
E01325M	MAb (<i>Detection</i>), ELISA
* Does not interfere with anti-thyroglobulin auto-antibodies.	

Human Antigens (for use as standards, controls & calibrators)

Alpha Fetoprotein (AFP)

A32260H	Produced in cell culture, derived from a liver tumor cell and contains approximately 70% of the AFP-L3 isoform, ≥ 95% pure (SDS-PAGE & WB)
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Beta 2 Microglobulin (B2M)

A01412H	From human urine, ≥ 98% pure (SDS-PAGE)
CA15-3	
A32231H	Produced in cell culture, low cross reactivity
CA125	
A32180H	Produced in cell culture, low cross reactivity
CA19-9	
A86199H	From native human metastatic liver carcinoma
A01458H	Produced in cell culture, provided as cell culture concentrate

CA72-4

A01723H	Produced in cell culture, low cross reactivity
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CA50

A01264H	Produced in cell culture, provided as cell culture concentrate
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CEA

A32030H	Produced in cell culture, > 50% pure (SDS-PAGE)
A38151H	From native human liver metastases, > 95% pure (SDS-PAGE)

Cyfra 21-1

A32340H	Produced in cell culture, low cross reactivity
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Human Hemoglobin (Fecal Occult Blood)

A38192H	From human erythrocytes, > 96% pure (SDS-PAGE)
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Neuron Specific Enolase (NSE)

A86803H	From human brain, > 95% pure (SDS-PAGE)
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Pepsinogen II

A01691H	Purified from human stomach, lyophilized, ≥ 90% pure (SDS-PAGE)
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Pepsinogen I

A01420H	From human gastric mucosa, > 90% pure (SDS-PAGE)
A01692H	Purified from human stomach, lyophilized, ≥ 90% pure (SDS-PAGE)

Prostate Specific Antigen (PSA)

A01368H	PSA, from human seminal fluid, lyophilized, > 95% pure (SDS-PAGE)
A31029H	PSA/ACT Complex, from human seminal fluid and plasma, > 95% pure (SDS-PAGE)
A86878H	PSA, From human seminal fluid, lyophilized, > 98% pure (SDS-PAGE)

Prostatic Acid Phosphatase (PAP)

A01277H	From human seminal fluid, lyophilized > 96% pure
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S-100 Beta

A86809H	From human brain tissue, contains both beta-beta and alpha-beta isoforms, > 95% pure
A86289H	From human brain tissue, contains only beta-beta homodimer, > 95% pure (SDS-PAGE)

Thyroglobulin

H6T08-747	From human thyroid tissue, > 98% pure (SDS-PSGE)
A86852H	From human thyroid tissue, > 90% pure (SDS-PAGE)

Product list

Abbreviations

- 6-His** – Polyhistidine-tag
Aff.Pur. – Affinity Purified, analyte-specific column
Ag – Antigen
Alk.Phos. – Alkaline Phosphatase conjugated product
CLIA – Chemiluminescence Immunoassay
CVD – Cardiovascular Disease
DB – Dot Blot
DFA – Direct Immunofluorescence Assay
FC – Flow Cytometry
FITC – Fluorescein conjugated product
GST – Glutathione S-transferase
HRP – Horseradish peroxidase conjugated product
IB – Immunoblot
ICC – Immunocytochemistry
IEP – Immunoelectrophoresis
IFA – Immunofluorescence Assay
IgG – Immunoglobulin G
IgM – Immunoglobulin M
IHC – Immunohistochemistry
IP – Immunoprecipitation
LF – Lateral Flow
Lysate – Cells which have been lysed
MAb – Monoclonal antibody
Monospecific – Single band when tested by immunoelectrophoresis
Neat – Whole, unpurified, undiluted antisera
Neph – Product has been quality controlled by Nephelometry
PAb – Polyclonal antibody
Purified/IgG – Refer to the Certificate of Analysis regarding the extent of purification and the purification process used.
RIA – Radioimmunoassay
RID – Radial Immunodiffusion
SDS-PAGE – Sodium Dodecyl Sulfate Polyacrylamide Gel Electrophoresis
TIA – Product has been quality controlled by Turbidimetry
WB – Western blot

Alpha 1 Acid Glycoprotein (AGP)

AGP is one of the major acute phase proteins (a class of proteins whose plasma concentrations increase or decrease in response to inflammation). Alterations in the protein levels of AGP have been well documented for numerous physiological and pathophysiological conditions including lung and breast cancer.

Antigens

- A50106H
- Native antigen from human plasma
 - > 95% pure (SDS-PAGE), lyophilized

Alpha 1 Antichymotrypsin (ACT)

ACT in serum predominantly exists as a complex with Prostate Specific Antigen (PSA). The measurement of free PSA and the PSA-ACT complex may improve the utility of the serum PSA assay by providing a differential diagnosis of prostate cancer versus non-malignant prostate diseases, such as benign prostatic hyperplasia.

Antigens

- A50104H
- Native antigen from human plasma
 - 95% pure (SDS-PAGE), lyophilized

Alpha 1 Antitrypsin (A1AT)

A1AT is a secretory glycoprotein mainly produced in the liver and monocytes. It is the most abundant serine protease inhibitor in human plasma. Several cancers are associated with A1AT deficiency including primary liver carcinoma, lung cancer, bladder cancer and malignant hepatoma.

Monoclonals

- Does not cross-react with alpha 1 antichymotrypsin H45200M

Antigens

- A50110H
- Native antigen from human plasma
 - > 95% pure (SDS-PAGE), lyophilized

Alpha 2 HS Glycoprotein (AHSG)

AHSG is a glycoprotein present in the serum which is synthesized by hepatocytes. AHSG and anti-AHSG autoantibody may be useful serum biomarkers for breast cancer screening and diagnosis.

Antigens

- A50107H
- Native antigen from human plasma
 - > 90% pure (SDS-PAGE), lyophilized

Alpha 2 Macroglobulin (A2M)

A2M functions as a universal protease inhibitor in serum and is capable of binding various cytokines and growth factors. Malignant tumors are able to synthesize and release proteins into the circulation, including A2M that protects the tumor against immune system attacks. A common variant of A2M has also been suggested to lead to an increased risk of Alzheimer's disease.

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
L04330G	Goat	Monospecific	IEP

Antigens

- A50114H
- Native antigen from human plasma
 - > 95% pure (SDS-PAGE), lyophilized

Alpha Fetoprotein (AFP)

AFP is a tumor marker used to help detect and diagnose cancers of the liver, testicles, and ovaries. AFP can be fractionated by affinity electrophoresis into 3 glycoforms: L1, L2, and L3. AFP-L3 is specific to malignant tumors. An AFP-L3 test is used to help evaluate the risk of developing hepatocellular carcinoma, especially in those with chronic liver disease, and also to evaluate response of hepatocellular carcinoma to treatment.

Monoclonals

- Does not cross-react with human serum albumin
- Suitable for ELISA
- MAbs produced *in vivo* (unless otherwise noted)

M01254M

M01255M * Also works in LF assays

M86304B * Biotin conjugated

M86641M

M86501M * Reacts with AFP Receptor, suited to blocking AFP/ AFP-binding

Antibody Pairs

- Suitable for ELISA
- MAbs produced *in vivo* (unless otherwise noted)

CAPTURE	DETECTION	
H45610M	H45301M	* Does not react with human albumin, ferritin, hCG or PSA
MAM01-210	MAM01-301	
MAM01-301	K92270G	* K92270G is a polyclonal (goat)
M86304M	M86641M	* Does not react with human albumin

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K92204R	Rabbit	Purified	ELISA

Antigens

- A01406H
- Native antigen from human cord serum
 - Suitable for use in ELISA and WB
 - > 99% pure (SDS-PAGE)
- A01407H
- Native antigen from human cord serum
 - Suitable for use in ELISA and WB
 - > 99% pure (SDS-PAGE), lyophilized
- A32260H
- Native antigen from human hepatocellular carcinoma cell line
 - Contains approximately 70% of the AFP-L3 isoform
 - ≥ 95% pure (SDS-PAGE)
 - Suitable for use in ELISA and WB

Amylase

Amylase is produced by the exocrine pancreas and the salivary glands to aid in the digestion of starch. Amylase enzyme levels may be increased in some pancreas, salivary, prostate, lung and ovarian tumors. In general, the blood amylase test is used to help diagnose and monitor acute pancreatitis.

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K50894R	Rabbit	Purified	IEP, WB

Antigens

- A38120H
- Native alpha amylase from human pancreas
 - Specific activity of 450 Units/mg protein (lot dependent)
 - Purified and lyophilized
- A38211H
- Native alpha amylase from human saliva
 - Specific activity of 620 Units/mg protein (lot dependent)
 - > 90% pure (SDS-PAGE), lyophilized
- A01389P
- Native alpha amylase from pig pancreas
 - Specific activity of 640 Units/mg protein (lot dependent)
 - Purified and lyophilized

Product list *continued*

Apolipoprotein C1 (Apo C1)

Apo C1 is the smallest member of the apolipoprotein family and is mainly distributed on the surface of very low density lipoprotein (VLDL) chylomicrons and high density lipoprotein. Apo C1 is a potential serum marker for colorectal cancer, prostate cancer, breast cancer, lung cancer, thyroid carcinoma, malignant pleural mesothelioma, gastric cancer, pancreatic cancer and Wilms' tumor.

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K74110R	Rabbit	Aff.Pur.	ELISA,IB

Antigens

- A50366H
- Native antigen from human plasma VLDL
 - ≥ 95% pure (SDS-PAGE)

Apolipoprotein E (Apo E)

Apo E is a class of apolipoproteins found in the chylomicron and intermediate-density lipoprotein. It has been linked to cardiovascular disease, Alzheimer's disease, dementia, atherosclerosis, multiple sclerosis, peripheral artery disease, diabetes, stroke, and most recently, cancer, including breast and ovarian cancer.

Monoclonals

- Reacts to the E2, E3 and E4 isoforms of apolipoprotein E
 - Produced *in vivo*
 - Suitable for ELISA, IHC, IP and WB
- H06579M
- Reacts with VLDL of human plasma
 - Suitable for use in ELISA and IHC
 - Produced *in vivo*, lyophilized
- H61529M

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
G5C27-766	Goat	Aff.Pur.	N/A
K34002G	Goat	HRP	ELISA,WB
K74190G	Goat	Aff.Pur.	ELISA,WB
K62710G	Goat	Monospecific	IEP,TIA
K74180B	Goat	Biotin	ELISA,WB
H01378G	Goat	Purified	IEP

Antigens

- A50120H
- Native antigen from human plasma (VLDL)
 - > 95% pure (SDS-PAGE)

Beta 2 Microglobulin (B2M)

B2M is a protein involved with MHC class I molecules which is found on the surface of almost all nucleated cells. Elevated levels of B2M are noted in lymphoproliferative disorders, neoplasms (malignant and benign), inflammatory disease, and autoimmune diseases such as systemic lupus erythematosus and Sjögren's disease. For cancer, it is not diagnostic for a specific type, but it has been associated with the amount of cancer present (tumor burden) and can be used as a prognostic tumor marker for some blood cell cancers.

Monoclonals

- Recognizes the HLA-B2M complex, free or associated with the membrane
 - Suitable for use in FC, IHC and IFA
 - Lyophilized
- H42114M
- Reacts with soluble forms of B2M and B2M associated with cell-surface MHC Class I molecules and other membrane antigens
 - Suitable for use in ELISA, WB, FC, IP, and RIA
- MCP17-301

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
H01377G	Goat	Purified	IEP
K01372G	Goat	Aff.Pur.	N/A
K31640S	Sheep	Aff.Pur.	N/A

Antigens

- A01447H
- Native antigen from human urine
 - Suitable for use in ELISA
 - ≥ 98% Purity (SDS-PAGE)
- A01410H
- Native antigen from human urine
 - > 98% Purity (SDS-PAGE), lyophilized
- A01412H
- Native antigen from human urine
 - ≥ 98% Purity (SDS-PAGE)
- A01468H
- Recombinant (*E.coli*)
 - ≥ 95% Pure (HPLC), lyophilized

Cadherin-E

Cadherin-E is a calcium dependent cell adhesion molecule expressed predominately in epithelial tissues. It plays an important role in the growth and development of cells via the mechanisms of tissue architecture and the maintenance of tissue integrity. It is an important determinant of tumor progression, serving as a suppressor of invasion and metastasis (loss of Cadherin-E function promotes tumor progression).

Monoclonals

- Recognizes Cadherin-E expressed on non-neuronal epithelial cells
 - Suitable for use in IHC and IP
 - Produced *in vivo*, lyophilized
- P91176M

Calcitonin

Calcitonin is polypeptide hormone that is produced by the C-cells of the thyroid gland and it acts to reduce blood calcium (Ca²⁺), opposing the effects of parathyroid hormone (PTH). Calcitonin assay is used to identify patients with nodular thyroid diseases and to diagnose medullary thyroid cancer.

Antibody Pairs

- Suitable for use in CLIA, ELISA and RIA
- Recognizes Native Human Calcitonin

CAPTURE	DETECTION
E01357M	E01356M

Calprotectin L1

Calprotectin L1 is a neutrophil-derived protein that can be quantified in the feces and has become an established marker of whole gut inflammation. Fecal calprotectin levels are associated with lifestyle risk factors for colorectal cancer.

Antibody Pairs

- Suitable for use in ELISA with stool samples
- MAbs produced in cell culture, lyophilized

CAPTURE	DETECTION
K01373M	K01376M

Monoclonals

- Suitable for use in ELISA
 - Produced in cell culture, lyophilized
- K01374M
K01375M

Cancer Antigen 125 (CA125)

A protein in humans that is encoded by the MUC16 gene and found on the surface of many ovarian cancer cells. Monitoring CA125 blood serum levels is also useful for determining how ovarian cancer is responding to treatment and for predicting a patient's prognosis after treatment. CA125 can also be found in other cancers and in small amounts in normal tissue.

Antibody Pairs

- Detects both Group A and Group B
- Suitable for use in ELISA and WB
- MAbs produced in *in vivo*

CAPTURE	DETECTION
M86306M	M86924M
M86306M	M86429M

Monoclonals

- Suitable for use in ELISA and WB
 - MAbs produced *in vivo*
- M86306B * Specific to Group A, biotin conjugated
M86429B * Specific to Group B, biotin conjugated

Antigens

- A01693H
- Ovarian Cancer, Calibrator Grade
 - Low cross-reactivity
- A32180H
- Suitable for use as a calibrator for single or multiple analyte controls
 - Low cross-reactivity ideal for multi-analyte panels
 - Cell culture derived protein
- A97180H
- Cell culture derived protein from ovarian carcinoma cell line
 - Suitable for use in WB and RIA
- A86125H
- Cell culture derived protein from human adenocarcinoma cell line
 - Suitable for use as a calibrator
- A43350H
- Native antigen from human fluids
 - Suitable for use as a calibrator
 - Low cross-reactivity
- A86928H
- Cell culture derived protein from human adenocarcinoma cell line
 - Suitable for use as a calibrator
 - > 50% pure (SDS-PAGE)
- A01690H
- Partially pure antigen from human fluids
 - Low cross-reactivity
 - Suitable for use in ELISA and Electrochemiluminescence assay as a calibrator or control

Please note that cell culture derived antigens offer several advantages over the native fluid versions, including greater availability of the product.

Product list *continued*

Cancer Antigen 27.29 (CA27.29)

CA27.29 is an epitope on the protein core of the MUC1 mucin glycoprotein and is molecularly similar to the epitope for CA15-3. Elevated CA27.29 levels are primarily associated with metastatic breast cancer and is currently used as a tumor marker for treatment monitoring of advanced breast cancer.

Monoclonals

- Recognizes both cell culture and human fluid derived antigens
- The minimal epitope bound is the 8 amino acid sequence SAPDTRPA within the 20 amino acid tandem repeating sequence of the mucin core
- Suitable for use in ELISA, WB and IHC
- Produced in cell culture

M01334M

Cancer Antigen 15-3 (CA15-3 or MUC1)

CA15-3 is a tumor marker which corresponds to an immunodominant epitope in the extracellular portion of the membrane bound mucin MUC1. It is used to monitor a patient's response to breast cancer treatment and disease recurrence. CA15-3 and the associated CA27.29 are different epitopes on the same gene product.

Antibody Pairs

- Binds to an epitope within the VNTR tandem repeat peptide region of MUC1
- Suitable for use in ELISA and IHC
- MAbs produced in *in vivo*

CAPTURE	DETECTION	SPECIFIC FOR CA15-3
M86240M	M01288M	* Underglycosylated
M86240M	M01289M	* Underglycosylated
M86240M	M86240M	* Unglycosylated

Antigens

- A32231H
 - Low cross-reactivity ideal for multi-analyte panels
 - Suitable for use as a calibrator or control
 - Suitable for use in CLIA
 - Cell culture derived protein from human BTA cell line
- A86153H
 - Native antigen from human milk
 - Suitable for use as a calibrator or as an immunogen for antibody development
- A32000H
 - Suitable for use in CLIA and WB
 - Cell culture derived protein from human BTA cell line

- A01436H
 - Native antigen from human fluids
 - High purity (relative Purity Ratio: > 20,000 Units/mL/OD280nm)
 - Suitable for use in ELISA and WB

Please note that cell culture derived antigens offer several advantages over the native fluid versions, including greater availability of the product.

Cancer Antigen 19-9 (CA19-9)

Also called sialylated Lewis (a) antigen, CA19-9 is a tumor marker used primarily in the management of pancreatic cancer. CA19-9 is also elevated in many types of gastrointestinal cancer, such as colorectal cancer, esophageal cancer and hepatocellular carcinoma. Apart from cancer, elevated levels may also occur in pancreatitis, cirrhosis, and diseases of the bile ducts.

Monoclonals

- Suitable for IHC
- Produced in *in vivo*

M01237M

Antibody Pairs

- Suitable for use in ELISA
- MAbs produced *in vivo* (unless otherwise noted)

CAPTURE	DETECTION	
M66106M	M66108M	
M66107M	M66106M	* Pair does not cross-react CA72-4, PSA, CA125, CA242, and CEA
M66107M	M66108M	
M66108M	M66106M	
M01335M	M01335M	* Produced in cell culture, also works in IHC and WB

Antigens

- A32502H
 - Cell culture derived protein from human adenocarcinoma cell line
 - Suitable for use in CLIA
- A86199H
 - Native antigen from metastatic liver carcinoma
 - Suitable for use as a calibrator and an immunogen for antibody development
- A01458H
 - Cell culture derived protein
 - Concentrated (~76,000 U/mL), lot dependent

Please note that cell culture derived antigens offer several advantages over the native fluid versions, including greater availability of the product.

Cancer Antigen 50 (CA50)

CA50 cancer antigen is a glycolipid and elevated levels of CA50 are found in liver cirrhosis and diseases of the pancreas. CA50 is most prevalent in gastrointestinal cancers, but can also be associated with cancer outside the digestive tract.

Antigens

A01264H • Cell culture derived protein

Please note that cell culture derived antigens offer several advantages over the native fluid versions, including greater availability of the product.

Cancer Antigen CA72-4 (TAG-72)

CA72-4 is a mucinous glycoprotein used as a tumor marker for gastric carcinoma and ovarian cancer (clinical studies demonstrated diagnostic specificity of more than 95%). Elevated CA72-4 levels in serum and plasma have also been reported in other cancers including carcinomas of the pancreas, stomach, gallbladder, colon, cervix and endometrium. There is a good correlation between serologic CA72-4 levels and tumor stage and size. It has been used as an independent marker for the therapeutic monitoring and follow-up care of ovarian cancer patients, in particular in CA125 negative patients.

Antibody Pairs

- Suitable for use in ELISA
- MAbs produced *in vivo*

<u>CAPTURE</u>	<u>DETECTION</u>
M01341M	M01340M
M01342M	M01340M

Cancer Antigen 242 (CA242)

CA242 is related to the sialylated Lewis (a) blood group antigen (Ag-CA19-9) but it is chemically and immunologically distinct. It is used as a tumor marker for the early diagnosis of pancreatic cancer. It has been demonstrated that the CA242 and CA19-9 epitopes are co-expressed on the same mucins, however the detailed structure of the CA242 epitope has not been established. CA242 is suggested to be more specific than CA19-9 in the diagnosis of pancreatic cancer and overall there are differences in the relative expression of CA19-9 and CA242 between benign and malignant diseases and between carcinomas of various organs.

Antigens

A01267H • Cell culture derived protein
• Suitable for use as a calibrator

Please note that cell culture derived antigens offer several advantages over the native fluid versions, including greater availability of the product.

Carcinoembryonic Antigen (CEA)

CEA is a type of glycoprotein molecule that is produced by cells of the gastrointestinal tract during embryonic development and CEA is generally present in low levels in the blood. Elevated levels of CEA are detectable in certain types of cancer and to-date CEA is the most widely used tumor marker for assessing prognosis, detecting recurrence and monitoring treatment in people with colorectal cancer. High levels of CEA are also detectable in cancers of the pancreas, stomach, breast, lung, medullary carcinoma of the thyroid, and ovarian cancer.

Monoclonals

- Suitable for use in enzyme conjugation, radio-labeling or solid phase immobilization

- Produced *in vivo*

H45655M

- Suitable for use in FC
- Specific for epitope group V

M01329M

Antibody Pairs

- Suitable for use in ELISA

- MAbs produced *in vivo*

<u>CAPTURE</u>	<u>DETECTION</u>
MAM02-008	MAM02-009
MAM02-009	MAM02-007
MAM02-009	MAM02-008
MAM02-009	MAM02-881
M01250M	M01246M * Also works in IHC

Polyclonals

<u>CATALOG</u>	<u>SOURCE</u>	<u>FORMAT</u>	<u>APPLICATION</u>
K10290G	Goat	Neat	ELISA

Antigens

- A01442H • Native antigen from human fluids
• Suitable for use in ELISA
• ≥ 98% (SDS PAGE)
- A32321H • Purified antigen from cell culture
• Suitable for use in CLIA
• > 95% pure (SDS-PAGE), immunoaffinity purified
- A86808H • Native antigen from human fluids
• Suitable for use in ELISA
- A32030H • Purified antigen from cell culture
• > 50% pure (SDS-PAGE)
- A38151H • Purified antigen from human colon adenocarcinoma cell line
• ≥ 95% pure (SDS-PAGE)

Please note that cell culture derived antigens offer several advantages over the native fluid versions, including greater availability of the product.

Product list *continued*

Catalase

Catalase is an important enzyme that protects cells from oxidative damage by reactive oxygen species. Catalase is frequently down-regulated in tumors although the underlying mechanism remains unclear. It has been recommended for use as a biomarker for the diagnosis, prognosis, and treatment of breast cancer.

Antigen

- A50136H
- Native antigen from human erythrocyte
 - 95% pure (SDS-PAGE)
 - > 50,000 units/mg protein (lot dependent)

Cathepsin B

Cathepsin B is a member of the peptidase CI family and is produced in muscle tissue during metabolism and . It is known to be involved in cancer progression and invasion. Specifically it has been studied to be a potential prognostic marker for lymph node metastasis in inflammatory breast cancer and as a tumor marker in ovarian cancer and nasopharyngeal carcinoma.

Antigen

- A50138H
- Native antigen from human liver
 - > 95% pure (SDS-PAGE)

Cathepsin D

Cathepsin D is an aspartic protease of the peptidase AI family that clears several substrates such as fibronectin and laminin. It is used as a prognostic factor in breast cancer, specifically it can serve as an independent predictor of early recurrence and death in node-negative breast cancer. Mutations in this gene are involved in the pathogenesis of several diseases including Alzheimer disease.

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K50161R	Rabbit	Purified	ELISA,WB

Antigen

- A50161H
- Native antigen from human liver
 - ≥ 95% pure (SDS-PAGE), lyophilized

CD1d

CD1d encodes a divergent member of the CD1 family of transmembrane glycoproteins, which are structurally related to the major histocompatibility complex (MHC) proteins and form heterodimers with beta-2-microglobulin. Studies have shown that breast cancer cells, through downregulation of CD1d and subsequent evasion of NKT-mediated antitumor immunity, gain increased potential for metastatic tumor progression.

Monoclonals

- Suitable for use in IHC and IP
 - Produced in cell culture
- P01242M

CD3

CD3 consists of a protein complex with four chains and it is required for T-cell activation. CD3 expression can be detected at all stages of T-cell development. Studies have shown that patients with an unresponsive CD3 receptor have a significantly higher incidence of recurrent head and neck squamous cell carcinoma. CD3 is also under investigation as a target for immunosuppressant therapies for type 1 diabetes and other autoimmune diseases.

Monoclonals

- Produced *in vivo*
- MAL66-801

CD4

CD4 positive cells are crucial for the activation and regulation of most aspects of the host's defense against infections and are central to the pathogenesis of many autoimmune diseases. In addition, evaluation of CD4 and CD8 cells may be used to help classify lymphomas and determine the appropriate therapy.

Monoclonals

- Suitable for use in FC
 - Lyophilized
- P42398M

CD8

CD8 is a transmembrane glycoprotein that serves as a co-receptor for the T-cell receptor. CD8-positive T-cells represent a major arm of the cell-mediated anti-tumor response and a promising target for developing T-cell-based immunotherapies against lung cancer. The chronic presence of lung tumors induces dysfunctions in CD8-positive T-cells and sensitizes them to activation-induced cell death, which may be associated with poor clinical responses.

Monoclonals

- Produced *in vivo*
- MAL08-804

CD9

CD9 is a cell surface glycoprotein that is known to complex with integrins and other transmembrane 4 superfamily proteins. The encoded protein functions in many cellular processes and the expression of this gene plays a critical role in the suppression of cancer cell motility and metastasis. Studies have also reported that reduced expression of CD9 is related to aggressive behavior of cancer cells.

Monoclonals

- Suitable for use in FC
- Produced *in vivo*

MAL09-061 * Recognizes an epitope on 2nd extracellular domain (EC2) of CD9 antigen, also works in WB

P42117M * Also works in IHC

- Suitable for use in WB, IP and IHC
- Produced in cell culture

P54162M

CD13 (Aminopeptidase N)

CD13 is a Zn²⁺ dependent membrane-bound ectopeptidase that preferentially degrades proteins and peptides with a N-terminal neutral amino acid. It has been associated with the growth of different human cancers and is suggested to be a suitable target for anti-cancerous therapy.

Monoclonals

- Suitable for use in FC and IHC
- Produced in cell culture, biotin conjugated

P01150B

CD15

CD15 is a complex cluster of cell surface glycoproteins and glycolipids having a common terminal pentasaccharide known as the Lewisx (Lex) antigen. In haematopathology, CD15 is important for the diagnosis of classical Hodgkin's disease and the characterization of acute leukemia. CD15 may be used for histopathological grading of gliomas and differentiating between malignant gliomas and non-neoplastic glial cells. Hepatocellular, gastric, and colonic carcinoma and thyroid medullary carcinoma also appear to have worse prognosis if positive for CD15.

Monoclonals

- Suitable for use in FC, IHC and IFA
- Produced in cell culture

P01158B

CD19

CD19 is a co-receptor for CD21 and an important signal transduction molecule which is involved in the regulation of B-lymphocyte development, activation and differentiation. CD19 may provide useful diagnostic information for the study of B-lymphoproliferative disorders.

Monoclonals

- Can be used to enumerate B-cells in peripheral blood or tissue
- Produced in cell culture

P01141M

- Suitable for use in FC
- Produced *in vivo*, lyophilized

P42313M

CD24

CD24, a heat stable antigen, is a surface marker expressed in many tumor types. It has been identified as a marker of cancer stem cells (CSCs) and several studies suggest that CD24-positive tumors are related to a poor prognosis and for several cancer types.

Monoclonals

- Recognizes B-cells from pre-B to mature-B stage
- Suitable for use in FC and IHC
- Produced *in vivo*, lyophilized

P42118M

CD28

CD28 is one of the proteins expressed on T-cells that provides co-stimulatory signals required for T-cell activation and survival. It is also the receptor for CD80 and CD86 proteins. Studies have shown that it is a marker associated with tumoral expansion in multiple myeloma.

Monoclonals

- Induces T-cell proliferation in co-stimulation with CD2 monoclonal antibodies
- Suitable for use in FC
- Produced *in vivo*

P42235M

Product list *continued*

CD29 (Integrin beta-1)

CD29 is an integrin unit associated with very late antigen receptors. It serves as a marker for cancer stem cells (CSCs) and cancer metastasis. CSCs which are enriched for a CD24, CD29 and CD49 display a much higher migration ability.

Monoclonals

- Suitable for use in FC and IFA
- Produced *in vivo*, lyophilized

P42598M

CD30

CD30 is a cell membrane protein of the tumor necrosis factor receptor family and a tumor marker. CD30 is associated with anaplastic large cell lymphoma. It is expressed in embryonal carcinoma and on classical Hodgkin Lymphoma Reed-Sternberg cells. In 2011, the FDA approved an agonistic anti-CD30 drug conjugate, Brentuximab vedotin, for the treatment for CD30-positive lymphomas

Monoclonals

- Suitable for use in FC, IHC and IFA
- Produced *in vivo*, lyophilized

P42705M

CD37

CD37 antigen is a transmembrane protein of the tetraspanin superfamily that is highly expressed on B-cells during the pre-B to peripheral mature B-cells. In normal tissues, CD37 expression is restricted to lymphoid tissues. However, CD37 is highly expressed on malignant B-cells in non-Hodgkin lymphoma and chronic lymphocytic leukemia which suggests that CD37 could be a promising therapeutic target for B-cell malignancies.

Monoclonals

- Suitable for use in ELISA, IHC and IP
- Produced *in vivo*

K8A069M

CD40

CD40 is a TNF receptor superfamily member expressed broadly on antigen-presenting cells and is required for their activation. CD40 expression has been demonstrated in a wide range of tumor cells, including non-Hodgkin's and Hodgkin's lymphomas, myeloma and some carcinomas including nasopharynx, bladder, cervix, kidney and ovary. CD40 has shown to be a potential biomarker for atherosclerotic instability.

Monoclonals

- Suitable for use in FC and IFA
- Produced *in vivo*, lyophilized

P42374M

CD42

CD42 is a cell-surface glycoprotein involved in cell-cell interactions, cell adhesion and migration. It participates in a wide variety of cellular functions including lymphocyte activation, recirculation and homing, hematopoiesis, and tumor metastasis.

Monoclonals

- Specific for CD42a within the intact CD42a-d complex
- Suitable for use in FC, IFA and IP
- Produced *in vivo*, FITC labelled

N42538F

- Specific for CD42b
- Suitable for use in FC
- Produced *in vivo*, lyophilized

N42409M

- Specific for CD42b
- Suitable for use in FC and IFA
- Produced *in vivo*, FITC labelled

P42648F

CD49d

CD49d is an integrin alpha subunit composed of a $\beta 4$ (CD49d) and a $\beta 1$ (CD29) chain and serves as a receptor for fibronectin and VCAM-1. It is normally expressed on monocytes, T-cells, and eosinophils and mainly functions as a cell adhesion and signaling molecule. In cancer, it is an independent prognostic marker for disease progression in patients with chronic lymphocytic leukemia.

Monoclonals

- Suitable for use in FC and IFA
- Produced *in vivo*, lyophilized

P42764M

CD49f (Integrin alpha-6)

CD49f is a type I transmembrane protein present on platelets, macrophages, monocytes, thymocytes and T-cells. CD49f, in combination with CD61, is a possible marker of cancer stem cells and may also serve as a potential therapeutic target for cancer metastasis.

Monoclonals

- Recognizes the alpha chain of the CD49 alpha 2/beta 1 complex
 - Suitable for use in IHC, FC and IFA
 - Produced *in vivo*, lyophilized
- P42769R

CD56 (Neural cell adhesion molecule or NCAM)

CD56 is a homophilic binding glycoprotein normally expressed on the surface of neurons, glia, skeletal muscle and natural killer cells. Several different tumor types are also characterized as being CD56-positive and include myeloma, myeloid leukemia, neuroendocrine tumors, Wilms' tumor, neuroblastoma, NK/T cell lymphomas, pancreatic acinar cell carcinoma, small cell lung carcinoma, and the Ewing's sarcoma family of tumors.

Monoclonals

- Recognizes the 180, 145 and the 125 KDa isoforms of CD56
 - Suitable for use in IHC
 - Produced *in vivo*, biotin conjugated
- P01176B

CD57

CD57 is a glycoprotein with cell adhesion functions normally expressed on NK-cells. It serves as a marker of NK cells and neuroendocrine tumors and helps distinguish high grade prostatic adenocarcinoma (CD57-positive) from high grade urothelial carcinoma (CD57-negative).

Monoclonals

- Suitable for use in WB, IHC and FC
 - Produced in cell culture
- P01287M

CD59

CD59 is a glycoprotein expressed on all human peripheral blood leukocytes, erythrocytes, and several human cell lines. It is a potent inhibitor of the complement membrane attack complex (MAC) action. Its overexpression has been observed in many types of solid cancers, such as pancreatic cancer and lung cancer.

Monoclonals

- Reacts with a well-defined epitope (W40, R-53) on CD59
 - Suitable for use in FC and IP
 - Produced cell culture
- MAL59-043

CD66b

CD66b, also known as carcinoembryonic antigen-related cell adhesion molecule 8 (CEACAM8), is expressed mainly on granulocytes such as a GPI anchored molecule and its main functions are cell adhesion, cell migration, and pathogen binding. Under normal conditions, neutrophils have minimal expression of CD66b, however, in chronic myeloid leukemia its expression is upregulated.

Monoclonals

- Suitable for use in FC and IFA
 - Produced *in vivo*, FITC labelled
- P42531F

CD71

CD71, the transferrin receptor, is involved in the cellular uptake of iron and is expressed on cells with high proliferation. Data suggests that it might be implicated in promoting the growth of endocrine resistance in breast cancer and may serve as a prognostic marker of poor outcome and resistance to tamoxifen.

Monoclonals

- Recognizes soluble and bound transferrin receptor
 - Suitable for use in ELISA and WB
 - Produced cell culture
- H01372M
- Suitable for use in ELISA and WB
 - Produced *in vivo*
- H86602M

Product list *continued*

CD77

CD77 is a type II membrane protein and is used as a marker for Burkitt's lymphoma. It is also a receptor for Shiga Toxin and Verotoxin 1 (VT1), which is produced by *Shigella dysenteriae* and some strains of *E. coli*.

Monoclonals

- Suitable for use in IHC, IFA, and FC
- Produced *in vivo*

P42175R

CD90

CD90 is a cell surface glycoprotein involved in cell adhesion and cell communication in numerous cell types, but particularly in cells of the immune and nervous systems. It is widely used as a marker for hematopoietic stem cells and has been identified as a valuable marker to differentiate epithelioid mesothelioma from lung carcinoma. It may also function as a tumor suppressor in nasopharyngeal carcinoma.

Monoclonals

- Suitable for use in WB, IFA, FC, and IP
- Produced in cell culture

P01283M

CD103

CD103 is an integrin protein expressed on T-cells which is upregulated in Hairy Cell Leukemia (HCL). It is regularly used in flow cytometry panels and in IHC assays for identifying HCL in peripheral blood, bone marrow aspirate and tissue samples.

Monoclonals

- Suitable for use in IHC, IFA, IP and FC
- Produced *in vivo*, lyophilized

P42318M

CD105 (Endoglin)

CD105 is an accessory protein of the transforming growth factor-beta receptor system and is expressed on vascular endothelial cells. Studies have identified CD105 expression in several solid tumor types, with the level of expression correlating to various clinicopathologic factors including decreased survival and presence of metastases. It is an independent predictive marker for death risk and unfavorable prognosis in patients with renal cell carcinoma.

Monoclonals

- Suitable for use in WB, IP and FC
- Produced *in vivo*

MAL105-226

CD147

CD147, an extracellular matrix metalloproteinase inducer, is correlated with tumor aggressiveness in various human malignancies including ovarian and gastric cancers. Its expression is highly associated with cancer invasion and metastasis and it has the potential to serve as a prognostic biomarker (e.g. poor outcome).

Monoclonals

- Recognizes an epitope in the N-terminal Ig domain (D1)
- Suitable for use in FC
- Produced *in vivo*

P87535M * Also works in WB and IP

CD152 (CTLA-1)

CD152 is an essential receptor involved in the negative regulation of T-cell activation, downregulating the immune response. Increased expression of CD152 is observed in chronic lymphocytic leukemia (CLL), and it is postulated that CD152 may inhibit host immune responses against leukemia cells and contribute to the disease progression.

Monoclonals

- Suitable for use in IHC, FC and ICC
- Produced *in vivo*, lyophilized

P91207M

CD177

CD177 is an important membrane glycoprotein on neutrophils and serves as a marker for myeloproliferative diseases. Loss of CD177 expression is linked to higher metastasis incidence and shorter survival in breast cancer patients.

Monoclonals

- Suitable for use in WB, FC and IP
- Produced *in vivo*

MAL177-166

CD195 (CCR5)

CD195 is a protein on the surface of white blood cells that is involved in the immune system and it acts as a receptor for chemokines, specifically CCL3 (MIP1 α), CCL4 (MIP1 β) and CCL5 (RANTES). It is also used by HIV (along with CXCR4) to enter target cells. CD195 has been implicated to play a role in the metastasis of breast cancer and colorectal cancer.

Monoclonals

- Suitable for use in FC
- Produced cell culture

P01240M

Centromere Protein B (CENPB)

CENPB is a highly conserved DNA protein that facilitates centromere formation. It is used as a serologic marker for autoimmune diseases, specifically sclerosis and other rheumatic conditions. It is also a potential biomarker of small-cell lung cancer and a prognostic marker for breast cancer (indicating prolonged survival).

Antigens

- A01375H
- Recombinant (*Sf9* Insect Cells)
 - Suitable for use in ELISA and WB
 - > 95% pure (SDS-PAGE)
- R01646
- Recombinant (*Sf9* Insect Cells)
 - Suitable for use in ELISA and WB
 - ≥ 90% pure (SDS-PAGE)

Ceruloplasmin

Ceruloplasmin is a glucoprotein that transports serum copper. It is primarily used to help diagnose Wilson disease, a rare inherited disorder associated with excess storage of copper in the liver, brain, and other organs. Serum ceruloplasmin may also be a useful diagnostic marker of cancer in advanced stages of solid malignant tumors.

Antigens

- A50143H
- Native antigen from human plasma
 - > 95% pure (SDS-PAGE), lyophilized

c-Myc

c-Myc a multifunctional, nuclear phosphoprotein that plays a role in cell cycle progression, apoptosis and cellular transformation. A mutated version causing constitutive expression of c-Myc is found in many cancers, including Burkitt lymphoma the cervical, ovarian, colon, breast, lung and stomach cancers.

Monoclonals

- Produced *in vivo*
- MAB07-510 * Suitable for use in WB and IHC

Collagen Type IV

Type IV Collagen is an extracellular matrix protein found in all basement membranes and forms a supramolecular network that influences cell adhesion, migration and differentiation of epithelial cells. Patients with pancreatic cancer have shown significantly increased circulating levels of type IV Collagen suggesting its use as a potential biomarker.

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
T40251R	Rabbit	Purified	ELISA, IFA, IHC
T33340G	Goat	Aff. Pur.	ELISA, ICC, IHC, WB

Antigens

- A33125H
- Native antigen from human placental villi
 - Suitable for use as a standard or for antibody production
 - > 90% pure (SDS-PAGE)

Collagen Type VI

Collagen Type VI is a widely distributed extracellular matrix macromolecule that plays a crucial role in tissue development and is highly expressed in cancers. Studies show that it promotes chemotherapy resistance, and specifically in breast cancer it regulates cancer progression and metastasis.

Antigens

- A33129H
- Native antigen from human placental villi
 - Suitable for use as a standard, or for antibody production
 - > 90% pure (SDS-PAGE)

Cyfra 21-1, Cytokeratin 19 Fragment

Cyfra 21-1 is a sensitive and specific tumor marker of lung cancer, especially of the squamous cell subtype. An assay for Cyfra 21-1 was first approved by the FDA in 2011 to monitor disease progression and treatment of lung cancer patients. It is also reported to be a potential biomarker for ovarian cancer.

Monoclonals

- Suitable for use in ELISA
 - Produced *in vivo*
- M01300M

Antigens

- A32340H
- Native antigen from MCF-7 Cell Supernatant
 - Calibrator Grade with low cross-reactivity
 - Suitable for use in CLIA

Product list *continued*

Defensin-beta

Human defensins are small cationic peptides produced by neutrophils and epithelial cells and they form two genetically distinct alpha and beta subfamilies. Defensins are involved in various aspects of the innate and acquired immune responses and recently, single nucleotide polymorphisms of beta-defensins have been correlated with increased susceptibility to cancer. Specifically, in oral cancer beta-defensins are down-regulated indicating that it may play a role in tumor suppression.

Monoclonals

- Suitable for use in ELISA
- Produced in cell culture, lyophilized

EPITOPE BINDING

P24141M a.a. 1-36, Defensin-beta 1 * Also works in WB

P24011M a.a. 4-41, Defensin-beta 2

Antigens

- A24100H
- Synthetic peptide representing a.a. 4-41 (Defensin-beta 2)
 - > 95% pure (HPLC), lyophilized
- A24601H
- Synthetic peptide representing a.a. 3-39 (Defensin-beta 4)
 - > 95% pure (HPLC), lyophilized

Desmin

Desmin is a type III intermediate filament in smooth muscle tissue and has a wide variety of functions. Several studies have shown that desmin is a highly sensitive marker for endothelial cell differentiation and tumor invasiveness in several types of cancers, including colon cancer, gastrointestinal stromal tumors, and embryonal sarcoma.

Monoclonals

- Produced *in vivo*
- MAM26-014

Desmocollin 3

Desmocollin 3 is a calcium-dependent glycoprotein that is localized in desmosomal junctions of stratified epithelial cells. It has been shown to be a sensitive and specific marker for the classification of non-small cell lung cancer into its major subtypes, adenocarcinoma or squamous cell carcinoma.

Monoclonals

- Suitable for use in WB and IHC
 - Produced in cell culture
- H44350M

Disialoganglioside GD2

Disialoganglioside GD2 is a sialic-acid bearing glycolipid that is expressed on the surface of all mammalian cells. Studies have shown that they are important target antigens for antibody dependent cellular cytotoxicity of human melanoma and neuroblastoma cells. The relatively tumor-specific expression of GD2 makes it a suitable target for immunotherapy with monoclonal antibodies or with artificial T-cell receptors.

Antigens

- A86168H
- Native antigen from human brain
 - > 98% pure (HPTLC), lyophilized

Elastase

Elastase is a serine proteinase and specifically the neutrophil form of Elastase is 218 amino acids long, with two asparagine-linked carbohydrate chains. It is secreted by neutrophils and macrophages during inflammation to destroy bacteria and host tissue. Research has shown that neutrophil Elastase can speed up the progression of cancer and the amount of immunoreactive neutrophil Elastase in tumor tissue is an independent prognostic indicator of patients with breast cancer and lung cancer.

Antigens

- A01683H
- Native antigen from human neutrophils
 - Suitable for use in ELISA and WB
 - ≥ 90% pure SDS-PAGE (Chromatography)
- A50145H
- Native antigen from human neutrophils
 - > 95% pure (SDS-PAGE), lyophilized

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K90052C	Sheep	Purified	WB

Epidermal Growth Factor Receptor (EGFR)

EGF is a growth factor that stimulates cell growth, proliferation, and differentiation by binding to its receptor EGFR. Dysregulation of EGF and mutations that lead to EGFR overexpression have been associated with a number of cancers, including lung, breast and anal cancers as well as glioblastoma multiforme. Many therapeutic approaches are aimed at the EGFR such as cetuximab and panitumumab.

Monoclonals

- Suitable for use in ELISA (unless stated otherwise)
 - Lyophilized
 - Produced in cell culture (unless stated otherwise)
- K67138M * Recognizes the C-terminus a.a. 1165-1186, also works in IB, ICC and IP
- P24100M * Does not cross-react with v-erb-B, also works in IHC and FC

Epidermal Growth Factor Receptor (EGFR) *continued*

P24200M	* Does not cross-react with v-erb-B, also works in IHC and FC
K67190M	* Recognizes site phosphorylated at Serine 1047, also works in IB, ICC and IP
K67902M	* Recognizes site phosphorylated at Tyrosine 1173, also works in IB, ICC and IP
K67123M	* Recognizes site phosphorylated at Tyrosine 845, also works in IB
K01101B	* Recognizes the extracellular domain, suitable for use only in IHC and FC, biotin conjugated and liquid form
K67112M	* Recognizes site phosphorylated at Tyrosine 1045, also works in IB and IP, liquid form

Antigens

VTI880	<ul style="list-style-type: none"> • Recombinant EGF (<i>P. pastoris</i>) • Suitable for use in WB • ≥ 95% pure (SDS-PAGE)
VTI882	<ul style="list-style-type: none"> • Recombinant EGF (<i>P. pastoris</i>) • Suitable for use in WB • > 95% pure (SDS-PAGE)
A42115H	<ul style="list-style-type: none"> • Recombinant EGFR (<i>E. coli</i>) • Contains less than 1% dimers and aggregates • >98% pure (RP-HPLC and SDS-PAGE), lyophilized
A67902H	<ul style="list-style-type: none"> • Synthetic EGFR Peptide phosphorylated at Tyr 1173 • Peptide sequence TAENAE-pY-LRVAPOSS • Purified and lyophilized • Suitable for use as a control/blocking phosphopeptide for use with monoclonal antibody, Catalog# K67902M

erbB-2, HER2/neu

Receptor tyrosine-protein kinase erbB-2 also frequently called HER2 (human epidermal growth factor receptor 2) is a member of the human epidermal growth factor receptor family. Overexpression of HER2 plays an important role in the development and progression of certain aggressive types of breast cancer. Approximately 15% of all newly diagnosed breast cancers are HER2-positive and the purpose of HER2 testing is to identify patients who could benefit from effective HER2-targeted therapies, such as trastuzumab (Herceptin), lapatinib (Tykerb), pertuzumab (Perjeta), and T-DM1 (Kadcyclapatinib).

Monoclonals

- Reacts with peptide ILDV4
 - Suitable for use in ELISA
 - Produced *in vivo*
- | | |
|---------|--|
| M01296M | * Reacts with peptide ILDV4 (dephosphorylated) |
| M01297M | * Reacts with peptide ILDV4 (phosphorylated) |
| M01298M | * Reacts with peptide ILDV2 (dephosphorylated) |
| M01299M | * Reacts with peptide ILDV2 (phosphorylated) |

Antigens

- | | |
|--------|---|
| R01605 | <ul style="list-style-type: none"> • Recombinant (HEK293 cells) • Suitable for use in ELISA • ≥ 95% Pure (SDS-PAGE), lyophilized, contains a His-tag |
|--------|---|

Epithelial Cell Adhesion Molecule (EpCAM)

EpCAM is a glycoprotein involved in cell-cell adhesion, signaling, cell migration, proliferation, and differentiation. Its expression is restricted to normal epithelial cells in healthy individuals but in cancer, its expression distribution varies depending on the type of carcinoma. It is considered a tumor-associated antigen and may act as a potential prognostic marker for various cancers.

Monoclonals

- Suitable for use in ELISA and WB
 - Produced *in vivo*
- | | |
|---------|---------------------------|
| M01310M | * Recognizes a.a. 116-242 |
|---------|---------------------------|

Factor H (Beta 1H)

Factor H is a member of the regulators of the complement activation family and is a complement control protein. There are a number of clinical implications arising from aberrant factor H activity including stroke, schizophrenia and cancer. Specifically, it has been identified as a tumor marker for bladder cancer.

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K90030C	Sheep	Purified	DD,IE,I EP

Factor VIII (FVIII)

FVIII is an essential blood-clotting protein, also known as anti-hemophilic factor. Inhibitors to FVIII develop in malignancies which can lead to an acquired hemophilic state and an increased risk for deep vein thrombosis and pulmonary embolism.

Monoclonals

- Antibody binds human factor VIII A2 domain in immunoblotting techniques
 - Suitable for use in ELISA and WB
- | |
|---------|
| N01277M |
|---------|

Product list *continued*

Fibroblast Growth Factor-acidic (FGF-acidic, FGF-1)

The FGF family includes FGF1 (acidic FGF), FGF2 (basic FGF), FGF6 and FGF8 and all are involved in a variety of biological processes, including embryonic development, cell growth, morphogenesis, tissue repair, tumor growth and invasion. Specifically their upregulation is seen in prostate cancer epithelial cells where they are responsible for enhancing tumor progression and clinical aggressiveness. It is considered a therapeutic target, particularly since therapies targeting FGF receptors and/or FGF signaling can affect both the tumor cells directly and tumor angiogenesis.

Antigens

- A42117H
- FGF-acidic recombinant (*E. coli*)
 - Contains less than 1% dimers and aggregates
 - >95% pure (HPLC, FPLC and reducing and non-reducing SDS-PAGE), lyophilized
- A42118H
- FGF-basic recombinant (*E. coli*)
 - Contains less than 1% dimers and aggregates
 - > 98% pure (RP-HPLC and SDS-PAGE), lyophilized

Fibronectin

Fibronectin is a multifunctional glycoprotein of the extracellular matrix that binds to membrane-spanning receptor proteins called integrins. It plays a major role in cell adhesion, growth, migration, and differentiation, and it is important for processes such as wound healing and embryonic development. Fibronectin and its integrin receptors play important role in tumor development and metastasis.

Monoclonals

- Reacts with the central domain
 - Suitable for use in ELISA and WB
 - Produced *in vivo*
- H01282M
- No cross-reactivity with alpha1-acid glycoprotein, serum albumin or other serum proteins
 - Produced *in vivo*
- M45216M

Antigens

- A63874H
- Native antigen from human plasma
 - > 95% pure (SDS-PAGE)

Glyceraldehyde-3-Phosphate Dehydrogenase (GAPDH)

GAPDH catalyzes the conversion of glyceraldehyde-3-phosphate to D-glycerate 1,3-bisphosphate which is the 6th step in the process of glycolysis. It is overexpressed in multiple human cancers, such as cutaneous melanoma, and its expression is positively correlated with tumor progression. It has also been implicated in several neurodegenerative diseases and disorders.

Monoclonals

- Suitable for use in ELISA and WB
 - Produced *in vivo*, HRP conjugated
- H86045P
- H86504P
- * Reacts with monomeric and dimeric forms (not tetrameric form), also works in IFA and ICC

Antibody Pairs

- Suitable for use in ELISA
 - Produced *in vivo*
- | CAPTURE | DETECTION | |
|---------|-----------|---|
| H86504M | H86045M | * Reacts with monomeric and dimeric forms (not tetrameric form), also works in WB |
| H86504M | H86903M | |

Glypican-1 (GPC1)

GPC1 is a cell surface proteoglycan and an abundant component of cells and the extracellular matrix. Glypicans act as co-receptors by facilitating the formation of ligand-receptor complexes and effectively lowering the required concentration of ligand. GPC1 has been implicated in the tumorigenic process in gliomas, pancreatic cancer and breast cancer. Specifically, exosomes positive for GPC1 may serve as a potential non-invasive diagnostic and screening tool to detect early stages of pancreatic cancer.

Monoclonals

- Recognizes native and recombinant human GPC1
 - Suitable for use in ELISA, IFA and IB
 - Produced *in vivo*
- M01253M

Heat Shock Proteins

Heat shock proteins are involved in protein folding, stability, transport and transcriptional regulation. They are also known to participate in many pathological processes, such as asthma, intimal hyperplasia, and insulin resistance. In addition they have a cytoprotective role and are essential for cancer cell survival and are often upregulated in cancer. Specifically, HSP20 may have value as a prognostic tumor marker for colorectal cancer and HSP27 as a prognostic marker of prostate cancer.

Monoclonals

- Suitable for use in ELISA, WB and IFA
- Produced *in vivo*

H86201M * Recognizes human recombinant HSP20 and HSP20 from human cardiac tissue

Hemoglobin

Hemoglobin is the iron-containing metalloprotein in red blood cells that transports oxygen. In diseases related to gastrointestinal bleeding such as colorectal cancer, hemoglobin is leaked into gastrointestinal tract and then discharged with the feces. Fecal occult blood tests (FOBT) are the specific name for assays that detect blood in the stool. Many commercial assays are ELISA or lateral flow based antigen detection assays that use antibodies specific to hemoglobin.

Antibody Pairs

- Suitable for use in ELISA

CAPTURE	DETECTION
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H01417M	H01416M	*Hemoglobin
H01416M	H01368M	*HbA1c
H01416M	H01369M	*HbA1c

- MAb to Hemoglobin (FOB)
- Recognizes Human Hemoglobin
- Suitable for use in Lateral Flow and Turbidimetry (Latex)

CAPTURE	DETECTION
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H01409M	H01410M
---------	---------

Antigens

- A01703N
- Suitable for use in LF
 - Purified, Liquid

Human Epididymis Protein 4 (HE4)

HE4 belongs to the family of whey acidic four-disulfide core proteins and currently, the biologic function of HE4 is unknown. Expression of HE4 is found in the glandular epithelium of the reproductive tract, distal renal tubules, and respiratory epithelium. In cancer, the highest serum levels of HE4 are found in epithelial cancer, serous ovarian cancer and endometrioid cancer. The main established application of HE4 is in post-therapy monitoring of ovarian cancer patients who had elevated pretreatment levels with little or no expression of CA125.

Antibody Pairs

- Suitable for use in ELISA
- Produced *in vivo*

CAPTURE	DETECTION
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M01323M	M01320M
M01323M	M01321M
M01323M	M01322M

Antigens

- A01469H
- Native antigen from human epididymis cell line
 - Suitable for use in CLIA
- A01466H
- Native antigen from human fluids
 - Suitable for use in CLIA
 - 90% Pure (SDS-PAGE)

5-Hydroxymethyluridine

5-Hydroxymethyluridine is formed from thymidine during the oxidation of DNA by ionizing radiation or reactive oxygen species which can be formed from inflammatory responses. The process causes genetic mutations, altered gene expression and chromosomal instability that has generally been implicated with aging, cancers and autoimmune disease. Specifically 5-Hydroxymethyluridine has been proposed as a marker of breast cancer.

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K2B400G	Goat	Neat	ELISA

Product list *continued*

Insulin Like Growth Factor I (IGF-I or Somatomedin C)

IGF-I is a peptide hormone involved in regulating human growth and development and is similar in molecular structure to insulin. It is produced primarily by the liver as an endocrine hormone and is a strong mitogen for a wide variety of cancer cell lines, including sarcoma, leukemia, and cancers of the prostate, breast, lung, colon, stomach, esophagus, liver, pancreas, kidney, thyroid, brain, ovary, and uterus (both cervical and endometrial).

Monoclonals

- Suitable for use in ELISA and RIA
 - Produced in cell culture
- E54061M

Antigens

- A42111H
- Recombinant (*E. coli*)
 - Contains less than 1% dimers and aggregates
 - > 95% pure (RP-HPLC and SDS-PAGE), lyophilized

Insulin Like Growth Factor Binding Protein 3 (IGFBP-3)

IGFBP-3 is a transporter protein produced in the liver that is thought to regulate growth through its main binding protein Insulin-like growth factor-1 (IGF-1). High circulating concentrations of IGF-1 are associated with an increased risk of cancer (especially breast cancer), whereas IGFBP-3 concentrations are associated with a decreased cancer risk.

Antibody Pairs

- Suitable for use in CLIA, ELISA and RIA
- Recognizes native and recombinant Human IGFBP-3

CAPTURE	DETECTION
K01411M	K01410M

Integrin alpha M (CD11b/MAC-1)

The Integrin alpha M subunit, also known as MAC-1 alpha subunit or CD11b, combines with the integrin beta 2 subunit (CD18) to form the non-covalent heterodimer integrin alpha M/beta 2, also known as the MAC-1 receptor. Integrin alpha M has been suggested to be an independent prognostic factor of gastric cancer patients, as well as lymph node metastasis and tumor size.

Monoclonals

- Suitable for use in IHC, IFA and FC
 - Produced *in vivo*, lyophilized
- P42190M
- Produced *in vivo*, FITC labelled
- P42530F

Interferon beta (IFN-beta)

IFN-beta is produced in large quantities by fibroblast cells and plays a role in the innate immune response. It can be used as a treatment for multiple sclerosis to reduce the relapse rate. Cancer research has also identified soluble IFN-beta to be a natural inhibitor of tumor blood vessel growth and to limit tumor growth.

Monoclonals

- Suitable for use in ELISA, WB, IHC and IP
 - Produced *in vivo*, lyophilized
- P01266M

Interferon gamma (IFN-gamma)

IFN-gamma is a cytokine that plays physiologically important roles in promoting innate and adaptive immune responses. In cancer, it has been shown to prevent the development of primary tumors, regulate tumor growth and to promote the host response to tumor.

Monoclonals

- Suitable for use in ELISA
 - Produced *in vivo*
- P18442M * Neutralizing antibody, lyophilized
- P86424M * Also works in WB

Antibody Pairs

- Suitable for use in ELISA and WB
- Produced *in vivo*

CAPTURE	DETECTION
P86842M	P01309M

Antigens

- A42302H
- Recombinant (*E. coli*)
 - > 98% (SDS-PAGE and RP-HPLC analysis), lyophilized

Interleukin 1 alpha (IL-1a) and Interleukin 1 Receptor (IL-1R)

IL-1a is a pleiotropic cytokine that is localized in the cytosol or cell membrane and is believed to regulate the intracellular environment. Its receptor is IL-1R and it is responsible for mediating its effects. It is known to be upregulated in many tumor types and has been implicated as a factor in tumor progression via the expression of metastatic and angiogenic genes and growth factors.

Antigens

- A42201H
- Recombinant IL-1a (*E. coli*)
 - > 97% pure (HPLC and SDS-PAGE), lyophilized

Kallikrein

Kallikreins are enzymes in a subgroup of the serine protease family that are capable of cleaving peptide bonds in proteins. In cancer cell lines, they are regulated by steroid hormones and in prostate cancer, human glandular kallikrein (hK2) is widely used as a tumor marker. Three other kallikreins, hK6, hK10, and hK11, are emerging new serum biomarkers for ovarian and prostate cancer diagnosis and prognosis.

Antigens

- A50190H
- Native antigen from human plasma
 - > 95% pure (SDS-PAGE), lyophilized

Lactate Dehydrogenase (LDH)

LDH is an enzyme composed of four subunits that catalyzes the conversion of lactate to pyruvic acid. It is released during tissue damage and is involved in tumor initiation and metabolism. Studies have shown differential expression between the LDH isoenzymes and overall, LDH expression can act as a general marker in the prognosis of cancers. Specifically expression of LDH-5 in tumors and the stroma has been found to be a strong prognostic factor for diffuse or mixed-type gastric cancers.

Antigens

- A38357H
- Native LDH sources from human heart
 - Specific Activity: 260 Units/mg protein (lot dependent)
 - Purified by ammonium sulfate precipitation
- A38155H
- Native LDH1 from human erythrocytes
 - Specific Activity: 125 Units/mg protein (lot dependent)
 - Ammonia sulfate suspension

- A38252H
- Native LDH2 from human erythrocytes
 - Specific Activity: 300 Units/mg protein (lot dependent)
 - Ammonia sulfate suspension
- A38353H
- Native LDH3 from human erythrocytes
 - Specific Activity: 240 Units/mg protein (lot dependent)
 - Ammonia sulfate suspension
- A38454H
- Native LDH4 from human erythrocytes
 - Specific Activity: 220 Units/mg protein (lot dependent)
 - Ammonia sulfate suspension
- A38558H
- Native LDH5 from human erythrocytes
 - Specific Activity: 460 Units/mg protein (lot dependent)
 - Ammonia sulfate suspension

Lamin

Lamins are the major component of the nuclear lamina with several functions including structural support of the nucleus, facilitating chromatin organization, gene regulation and DNA repair. They are often aberrantly expressed or localized in tumors and they are suggested to be a marker of good or poor patient survival depending on tumor subtype. In prostate cancer, lamins are specifically involved in cell proliferation, migration and invasion.

Monoclonals

- Reacts with Lamin isotypes of 60-75 kDa
- Suitable for use in WB, IFA and IHC

M01259M * Lyophilized

M44546M

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
T24210R	Rabbit	Purified	IHC,WB

T24210R is specific for Lamin 5

Antigens

- A24210H
- Native Lamin 5 from human foreskin keratinocytes
 - Suitable for use in WB
 - > 95% pure (SDS-PAGE)

Product list *continued*

Leptin

Leptin is a hormone made by adipose cells that helps to regulate energy balance by inhibiting hunger and regulating of fat stores. In the context of cancer, leptin expression can be induced under hypoxic conditions which often occurs in solid tumors. Leptin expression is upregulated in several types of cancer including breast, colorectal, prostate, ovarian, and lung cancer.

Monoclonals

- Suitable for use in IHC and ELISA
- Produced *in vivo*

H4A342M * Reacts with C-terminal, a.a. 92-145

Antigens

A42327H • Recombinant (*E. coli*)
• > 95% pure (RP-HPLC and SDS-PAGE), lyophilized

Lysozyme

Lysozymes are enzymes that damage bacterial cell walls and they can be found in a number of secretions, such as tears, saliva, human milk, and mucus. In certain cancers (especially myelomonocytic leukemia) excessive production of lysozyme by cancer cells can lead to toxic levels of lysozyme in the blood leading to kidney failure and low blood potassium.

Antigens

A50178H • Native antigen from human neutrophils
• 95% pure (SDS-PAGE), lyophilized

A01399H • Recombinant (rice seed)
• 90% pure (SDS-PAGE), lyophilized

Microtubule Associated Protein 2 (MAP-2)

MAP-2 is a protein involved in microtubule assembly, an essential step in neuritogenesis. Accumulating evidence shows that changes in the expression or post-translational modification of MAPs can contribute to the dysregulation of microtubule dynamics and consequently lead to the development of serious diseases, including cancer. MAP-2 has specifically been implicated to play a role in oral cancer.

Monoclonals

- Reacts with high molecular weight forms of MAP-2 (2a&2b)
- Suitable for use in WB and IHC (unless noted otherwise)
- Produced in cell culture

Q01119M

Q01120B * Biotin labelled, does not work in WB

Q01121F * FITC labelled

Mast Cell Tryptase (MCT)

MCT is considered to be an important marker of mast cell activation as well as an important mediator of inflammation and angiogenesis. It plays a role in pancreatic cancer angiogenesis and tumor growth and in breast cancer invasion and migration.

Monoclonals

- Recognizes alpha and beta isoforms of MCT
- Suitable for use in ELISA, WB and IHC
- Produced in cell culture

H01317M

Monocyte Chemotactic Protein 1 (MCP-1 or CCL2)

MCP-1 is a small cytokine that recruits monocytes, memory T-cells, and dendritic cells to the sites of inflammation produced by either tissue injury or infection. Increased MCP-1 serum levels have been seen in patients with various cancers and has been suggested to be a prognostic marker for solid tumors. It may also be a helpful tumor marker of prognosis in patients with digestive cancer, urogenital cancers, and head and neck cancers.

Antigens

A01251H • Recombinant (*E. coli*)
• > 98% pure (RP-HPLC & SDS-PAGE), lyophilized

Neutrophil Gelatinase-Associated Lipocalin (NGAL)/Lipocalin-2

NGAL is a secreted carrier protein that acts in the innate immune response and is used as a biomarker of kidney injury. It also functions as a growth factor and is highly expressed in early dysplastic lesions in the pancreas, suggesting a possible role as an early diagnostic marker for pancreatic cancer. In addition, serum NGAL might be a possible biomarker in pancreatitis and pancreatic adenocarcinoma.

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K01392C	C. Eggs	Aff.Pur.	N/A

Antigens

9278 • Recombinant (CHO cells)
• Suitable for use in WB
• ≥ 95% pure (SDS-PAGE)

Neuron Specific Enolase (NSE) gamma

NSE is a glycolytic enzyme that catalyzes the conversion of phosphoglycerate to phosphoenol pyruvate and is the dominant enolase-isoenzyme found in neuronal and neuroendocrine tissues. NSE can be used to monitor disease progression and management in small cell lung cancer, and as an independent predictor of survival of non-small cell lung cancer.

Antibody Pairs

- Specific for the gamma subunit, no cross-reactivity with alpha or beta subunits
- Suitable for use in ELISA
- Produced *in vivo*

<u>CAPTURE</u>	<u>DETECTION</u>
M86520M	M86101M
M86406M	M86101M
M86416M	M86101M
M86141M	M86201M
M86101M	M86520M

Antigens

- A86803H
- Native antigen from human brain
 - Subunit composition is gamma-gamma
 - Suitable for use in ELISA
 - > 95% pure (SDS-PAGE)
- A01359H
- Recombinant (*E. coli*)
 - Represents a.a. 2-434, contains a His-tag
 - Suitable for use in ELISA, LF, WB, DB, and IHC
 - > 95% pure (SDS-PAGE)
- A01448H
- Recombinant (*E. coli*)
 - Represents a.a. 1-434, contains a His-tag
 - Suitable for use in ELISA
 - ≥ 95% pure (SDS-PAGE)

Non-Neuronal Enolase (NNE or Alpha-enolase)

NNE is a key glycolytic enzyme that plays a functional role in several physiological processes. It is ubiquitously expressed in adult human tissues, and within cells it predominantly localizes to the cytoplasm. It is a potential cancer prognostic marker for glioma and non-small cell lung cancer.

Antigens

- A86584H
- Native antigen from human brain
 - Does not react with MAb to NSE in ELISA or WB
 - > 60% pure (SDS-PAGE)

Osteopontin (OPN)

OPN is an extracellular matrix protein involved in the regulation of normal mineralization in bone and teeth and is an important factor in bone remodeling. Various human cancers, including breast cancer, have been observed to express splice variants of OPN. Studies have shown that it is significantly associated with survival in several forms of cancer, suggesting its value as a clinical marker of tumor progression.

Monoclonals

- Specific to N-terminal (a.a. 1-166)
- Suitable for use in ELISA and WB
- Produced *in vivo*

M66102M

Antibody Pairs

- Suitable for use in ELISA and WB
- Produced *in vivo*

<u>CAPTURE</u>	<u>DETECTION</u>
M66103M	M66105M

Pepsinogen I and Pepsinogen II (Pepsinogen C)

Pepsinogen is a precursor of pepsin, a protease secreted in the stomach, and is immunologically categorized into two main classes, Pepsinogen I and Pepsinogen II. Serum Pepsinogen I/II ratio is widely used for the screening of gastric cancer and atrophic gastritis.

Antibody Pairs

- Recognizes Pepsinogen I
- Suitable for use in ELISA and Lateral Flow

<u>CAPTURE</u>	<u>DETECTION</u>
K01402M	K01402M
K01406M	K01407M

- Recognizes Pepsinogen II
- Suitable for use in ELISA and Lateral Flow.

<u>CAPTURE</u>	<u>DETECTION</u>
K01404M	K01404M

Antigens

- A01420H
- Native Pepsinogen II antigen
 - Suitable for use in WB
 - > 90% pure (SDS-PAGE), lyophilized

Product list *continued*

PIVKA-II

Protein Induced by Vitamin K Absence or antagonist-II (PIVKA-II) has been shown to be a useful marker for the diagnosis of hepatocellular carcinoma (HCC), especially when combined with alpha-fetoprotein (AFP), which is the most commonly used tumor marker for HCC. Overall, assays detecting both PIVKA-II and AFP have been shown to achieve a sensitivity and specificity 94% and 98.5%, respectively.

Antibody Pairs

- Suitable for use in ELISA
- Cross reactivity:
 - Prothrombin <0.001%
 - Thrombin <0.001%
- Developed using a proprietary synthetic immunogen

<u>CAPTURE</u>	<u>DETECTION</u>
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M01344M	M01343M
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Prolactin (PRL)

PRL is luteotropic hormone that plays an essential role in metabolism, regulation of the immune system, pancreatic development and lactation. It is synthesized and secreted in the anterior pituitary gland, breast tissue and decidua. A prolactin-secreting pituitary tumor is the most frequent cause of hyperprolactinemia which is associated with increased risk of breast cancer.

Antibody Pairs

- Suitable for use in ELISA
- Produced *in vivo*

<u>CAPTURE</u>	<u>DETECTION</u>
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E20122M	E20630M
E20630M	E20122M
MAF10-111	MAF10-145
MAF10-111	MAF10-710
MAF10-216	MAF10-245

Antigens

- A01274H
 - Recombinant (*P. pastoris*)
 - > 96% Pure (SDS-PAGE), lyophilized

Prostate Secretory Protein (PSP)

PSP is inhibin-like protein and one of the major secretory proteins of the prostate glands. It is postulated to play a role in cancer growth regulation and induction of apoptosis in prostate cancer cells. Low levels of PSP are associated with advanced prostate cancer.

Monoclonals

- Suitable for use in ELISA, WB and IHC
 - Produced *in vivo*, lyophilized
- M14248M

Prostate Specific Antigen (PSA)

PSA is a protease that makes semen more liquid by breaking down the high molecular weight protein of the seminal coagulum into smaller polypeptides. It exists in serum in multiple forms: complexed to alpha-1-anti-chymotrypsin (PSA-ACT complex), unbound (free PSA), and enveloped by alpha-2-macroglobulin. In men with prostate cancer or other prostate disorders, PSA levels are elevated and higher total PSA levels and lower percentages of free PSA are associated with higher risks of prostate cancer. The FDA first approved PSA as a screening assay for prostate cancer in the early 1990s.

Monoclonals

- Suitable for use in ELISA (unless otherwise noted)
 - Produced *in vivo*
- M01256M * Reacts with PSA/ACT complex and free PSA
M92396P * Reacts with total PSA, HRP conjugated
MAM07-234 * Only works in IHC

Prostate Specific Antigen (PSA) *continued*

Total PSA (Free PSA and PSA complexed with ACT)

Antibody Pairs

- Suitable for use in ELISA
- Produced *in vivo*
- All antibodies are MAbs unless otherwise noted

CAPTURE	DETECTION	
K92110R	M92396M	* K92110R is a PAb (rabbit)
M92396M	K92110R	
M86599M	M86506M	* Also works in LF
M01236M	M86506M	* Also works in LF
M66276M	M86506M	
M66279M	M86506M	
M66280M	M86506M	
M66276M	M66280M	
M66280M	M66276M	
M66279M	M66280M	
M66280M	M66279M	
M66280M	M66278M	
M66280M	M66281M	
M66278M	M66280M	
M66281M	M66280M	
M86506M	M86209M	

Free PSA

Antibody Pairs

- Suitable for use in ELISA
- Produced *in vivo*
- All antibodies are MAbs (unless otherwise noted)

CAPTURE	DETECTION	
M92986M	M92396M	
M86806M	M86506M	* Also works in LF
M86506M	M86806M	* Also works in LF
M86209M	M86806M	
M66278M	M86806M	
M66280M	M86806M	
M66281M	M86806M	
M86433M	M86343M	
M86343M	M86433M	

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K01393C	C. Eggs	Aff.Pur.	N/A
K31302G	Goat	Aff.Pur.	N/A
K51050G	Goat	Neat	ELISA

Antigens

A01444H	<ul style="list-style-type: none"> • Native PSA from human seminal plasma • Suitable for use in ELISA • ≥ 96% PSA (SDS-PAGE)
A86878H	<ul style="list-style-type: none"> • Native PSA from human seminal fluid • Suitable for use in ELISA, as an immunogen for antisera product or as a tracer for iodination • >98% PSA (SDS-PAGE), lyophilized
A01368H	<ul style="list-style-type: none"> • Native PSA from human seminal fluid • Suitable for use in ELISA • >95% PSA (SDS-PAGE), lyophilized
A31029H	<ul style="list-style-type: none"> • Native PSA/ACT Complex from human seminal fluid and human plasma • >95% PSA (SDS-PAGE)
A75029H	<ul style="list-style-type: none"> • Native PSA/ACT Complex from human seminal fluid and human plasma • >99% PSA (SDS-PAGE)
A01387H	<ul style="list-style-type: none"> • Native PSA from human seminal fluid • High pl Isoform • >96% PSA (SDS-PAGE)
A01238H	<ul style="list-style-type: none"> • Native PSA from human seminal fluid • ≥ 96% pure (SDS-PAGE)

Prostate Specific Membrane Antigen (PSMA)

PSMA is a type II transmembrane protein overexpressed by virtually all prostate cancers and an increase in expression is correlated with diverse severity. Unlike other prostate cancer markers such as PSA and PAP which are secretory proteins, PSMA is an integral cell-surface membrane protein that is not secreted, making it an ideal target for diagnostic imaging and monoclonal antibody therapy for prostate cancer.

Monoclonals

- Specific for extracellular domain
 - Suitable for use in ELISA, WB, IFA, IHC and WB
- M20454M

Product list *continued*

Prostatic Acid Phosphatase (PAP)

PAP, a component of total acid phosphate, is a major constituent in seminal fluid and is associated with the liquefaction process of semen. High concentrations are found in the prostate gland and it was the first clinically useful tumor marker for prostate cancer. It is used in monitoring remission or relapse of a prostatic malignancy and in assessing the effectiveness of various treatment regimens for prostate cancer.

Antigens

- A01277H
- Native antigen from human seminal fluid
 - > 96% pure, lyophilized

Retinol Binding Protein 4 (RBP4)

RBP4 is an adipokine and is the specific carrier for retinol (vitamin A alcohol) in the blood. It is secreted by adipocytes and has been shown to potentially have a causative effect on the development of insulin resistance. In epithelial ovarian cancer, RBP4 has been suggested as a candidate diagnostic or prognostic biomarker.

Antibody Pairs

- Recognizes free RBP4 and RBP4/ transthyretin complex
- Reacts with apo-RBP4 and holo-RBP4
- Suitable for use in ELISA and WB (reducing conditions)
- Produced *in vivo*

CAPTURE	DETECTION
E01269M	E01268M
E01269M	E01267M
E01265M	E01270M

S-100

The S-100 family of proteins are involved in the regulation of a number of cellular processes including cell cycle progression and differentiation. Dysregulated expression of several S100 proteins is a common feature of human cancers, with each type of cancer showing a unique S100 protein profile. S-100 is suggested to be a diagnostic marker for differentiating amelanotic malignant melanomas and may also aid the detection of micrometastatic disease in the lymph nodes of melanoma patients.

Monoclonals

- Produced *in vivo*
- MEM24-211 * Works in IHC
- Q86403M * Recognizes S-100 (beta-beta) and S-100 (alpha-beta), works in WB

Antibody Pairs

- Suitable for use in ELISA and IP
- MAbs produced *in vivo*

CAPTURE	DETECTION	
Q86006M	Q86610M	* Specific for S-100 beta-beta and alpha-beta
Q86003M	Q86610M	* Specific for S-100 beta-beta

Antigens

- A86809H
- Native antigen from human brain
 - Contains beta-beta homodimer (S-100b) and alpha-beta heterodimer (S-100a)
 - Suitable for ELISA, for antibody production or as tracer for iodination
 - > 95% pure, lyophilized
- A86289H
- Native S-100b homodimer from human brain
 - Suitable for ELISA, for antibody production or as tracer for iodination
 - > 95% pure, lyophilized

Scramblase 1

Scramblase is a calcium-binding phospholipid that contributes to the transbilayer movement of phosphatidylserine and other membrane phospholipids upon influx of calcium into the cytosol. Studies have demonstrated that scramblase-1 may be involved in the regulation of tumor cell proliferation and that it might be used as a noninvasive serological diagnostic and prognostic biomarker for colorectal cancer.

Monoclonals

- Suitable for use in WB
 - Includes positive control (cell lysate of serum starved untreated HepG2 cells)
 - Produced in cell culture
- H67109M

Serum Amyloid A (SAA)

SAA is a sensitive marker of acute inflammation that is synthesized under the regulation of inflammatory cytokines during both acute and chronic inflammation. Increases in serum levels of SAA correlate with many types of carcinogenesis and neoplastic diseases. Specifically SAA has been suggested to be a potential tumor marker for renal cancer, lung cancer and uterine cervical cancer.

Antibody Pairs

- Recognizes native and recombinant human SAA
- Suitable for use in ELISA and WB
- MAbs produced *in vivo*

CAPTURE	DETECTION
H01381M	H01383M
H01382M	H01384M

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
H01379R	Rabbit	Purified	ELISA, IEP

Antigens

- R01619
- Recombinant (*E. coli*)
 - 122 a.a. long with N-terminal His tag
 - Suitable for use in ELISA

Sialyl Lewis A and Sialyl Lewis X

Lewis blood group antigens are biosynthetically and structurally related carbohydrate structures used as markers of cell differentiation and embryonic development. Sialyl Lewis A and Sialyl Lewis X are specifically tumor-associated and involved in adhesion and metastatic potential of cancer cells. They are being used to identify new cancer biomarkers through antibody arrays paired with a glycan specific antibody to probe the bound glycoproteins, in identifying new ways to target cancer cells for therapy.

Monoclonals

- Produced *in vivo*

MAM10-810 * Specific for Sialyl Lewis A
MEM11-767 * Specific for Sialyl Lewis X

Superoxide Dismutase (SOD)

SODs are a group of metalloenzymes (containing Fe, Mn, or Cu and Zn) that are an important antioxidant defense in all living cells. Many human tumors have shown significant changes in the activity and expression of SODs. The ratio of MnSOD to CuZnSOD activity has been suggested as a potential biomarker for gastric adenocarcinoma.

Monoclonals

- Specific for Cu/Zn SOD
 - Suitable for use in ELISA and WB
 - Produced *in vivo*
- H86141M

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K90077C	Sheep	Purified	WB

* Specific for Cu/ZnSOD

Thymus and Activation Regulated Chemokine (TARC)

TARC is a small CC chemokine that is constitutively expressed in the thymus. It is known to play an important role in Th2-mediated immune-inflammatory processes. Aberrant TARC expression is observed in many diseases including cancer, autoimmune disorders, and atherosclerosis. Serum TARC is a promising serum biomarker for gastric cancer and induces metastasis of breast cancer cells.

Antigens

- A28330H
- Recombinant (*E. coli*)
 - >97% pure (SDS-PAGE and HPLC analysis), lyophilized

Product list *continued*

Thyroid Peroxidase (TPO)

TPO is a membrane thyroid enzyme essential for thyroid hormone synthesis and it is present in large quantities in the cytoplasm of normal thyrocytes. In malignant tumors, TPO synthesis is inhibited to varying degrees and maturation is deregulated resulting in overexpression of short splice variants. It has diagnostic utility as a tumor marker in thyroid cancer.

Monoclonals

- Can be used for affinity purification of human TPO
- Produced *in vivo*

E86415M

Antibody Pairs

- Suitable for use in ELISA
- Produced *in vivo*

CAPTURE	DETECTION
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E01311M	E01309M
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E01310M	E01309M
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Antigens

- | | |
|-----------|--|
| A01309H | <ul style="list-style-type: none">• Recombinant (Baculovirus), a.a. 19-846• Suitable for use in ELISA and WB• ≥ 95% pure (SDS-PAGE), lyophilized |
| H6T09-212 | <ul style="list-style-type: none">• Recombinant (<i>Sf9</i> Insect cells)• > 96% pure (SDS-PAGE) |

Thyroglobulin (Tg)

Thyroglobulin is a dimeric protein produced by the follicular cells of the thyroid and is the precursor of thyroid hormones thyroxine (T4) and triiodothyronine (T3). It is an FDA approved tumor marker to evaluate the effectiveness of treatment for differentiated thyroid cancer and to monitor for recurrence.

Antibody Pairs

- Suitable for use in ELISA
- Produced *in vivo*

CAPTURE	DETECTION
---------	-----------

E01326M	E01325M
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Antigens

- | | |
|---------|---|
| A86852H | <ul style="list-style-type: none">• Native antigen from human thyroid• Suitable for use as a standard, for antibody production or as a tracer for iodination• > 90% pure (SDS-PAGE), lyophilized |
|---------|---|

Tissue Transglutaminase (tTG)

tTG is a calcium-dependent enzyme which catalyzes the crosslinking of proteins and plays a role in apoptosis, cell adhesion, metastasis, and extracellular matrix assembly. tTG is particularly notable for being the autoantigen in coeliac disease and has also shown to play a role in regulating tumor growth and metastasis in breast cancer.

Antigens

- | | |
|---------|---|
| A01363H | <ul style="list-style-type: none">• Recombinant (HEK-293-EBNA cells)• Suitable for use in ELISA• 95% pure (SDS-PAGE), lyophilized |
| R01650 | <ul style="list-style-type: none">• Recombinant (<i>Sf-21</i> Insect Cells)• Suitable for use in ELISA• ≥ 90% Pure (SDS-PAGE) |

Trypsin

Trypsin is a serine protease family member found in the digestive system where it hydrolyses proteins. It is expressed by many tumors and plays a significant role in tumor invasion, especially in stomach cancer cells. Elevated expression of trypsin in colorectal cancer also correlates with unfavorable clinicopathological characteristics and shortened survival.

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K50900R	Rabbit	Purified	ELISA, IEP, WB

Antigens

- | | |
|---------|--|
| A50188H | <ul style="list-style-type: none">• Native antigen from human pancreas• > 95% pure (SDS-PAGE), lyophilized |
|---------|--|

Tumor Necrosis Factor alpha (TNF-alpha)

TNF-alpha is a cytokine produced by activated macrophages and is involved in the regulation of immune cells. Dysregulation of TNF production has been implicated in a variety of diseases including cancer, Alzheimer's, Psoriasis, and inflammatory bowel disease. In breast cancer, high TNF-alpha serum concentrations correlate with late-stage breast tumor phenotypes suggesting a role of TNF-alpha as a breast cancer marker.

Antibody Pairs

- Suitable for use in ELISA, IHC and neutralization
- Produced *in vivo*

CAPTURE	DETECTION
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H86410M	H86650M
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Tumor Necrosis Factor alpha (TNF-alpha) *continued*

Antigens

- A42301H
- Recombinant (*E. coli*)
 - > 95% pure (RP-HPLC and SDS-PAGE), lyophilized

Urokinase (uPA)

uPA is a serine protease used clinically as a thrombolytic agent in the treatment of severe or massive deep venous thrombosis, pulmonary embolism, and myocardial infarction. Substantial evidence implicates uPA, urokinase plasminogen activator receptor (uPAR) and plasminogen activator inhibitor-1 (PAI-1) in the neo-vascularization, invasion and metastasis of many solid tumors. Clinical studies have demonstrated an association between high levels of expression of this system in tumors and poor patient prognosis and outcome.

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K63819R	Rabbit	Purified	ELISA,IHC,WB

Vitronectin

Vitronectin is a glycoprotein that regulates proteolysis initiated by plasminogen and is involved in hemostasis. Studies have shown that serum levels of Vitronectin are correlated with tumor size, and clinical stage suggesting that it could serve as a promising serum marker for the early diagnosis of breast cancer.

Monoclonals

- Suitable for use in ELISA and IB
- Produced in cell culture

N77810M

Polyclonals

CATALOG	SOURCE	FORMAT	APPLICATION
K63964R	Rabbit	Purified	ELISA,WB

Antigens

- A63731H
- Native antigen from human plasma
 - > 95% pure (SDS-PAGE)



To place an order, please contact:

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