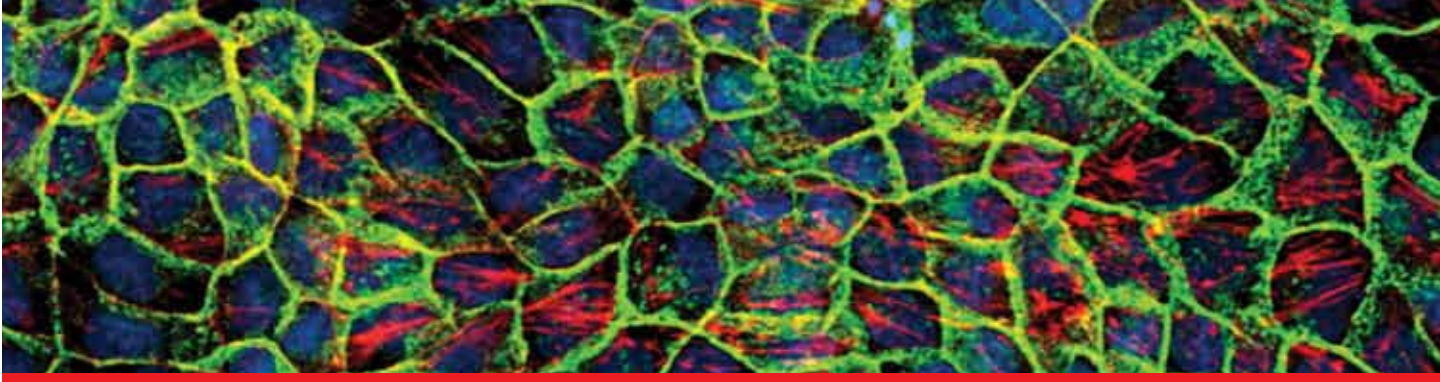
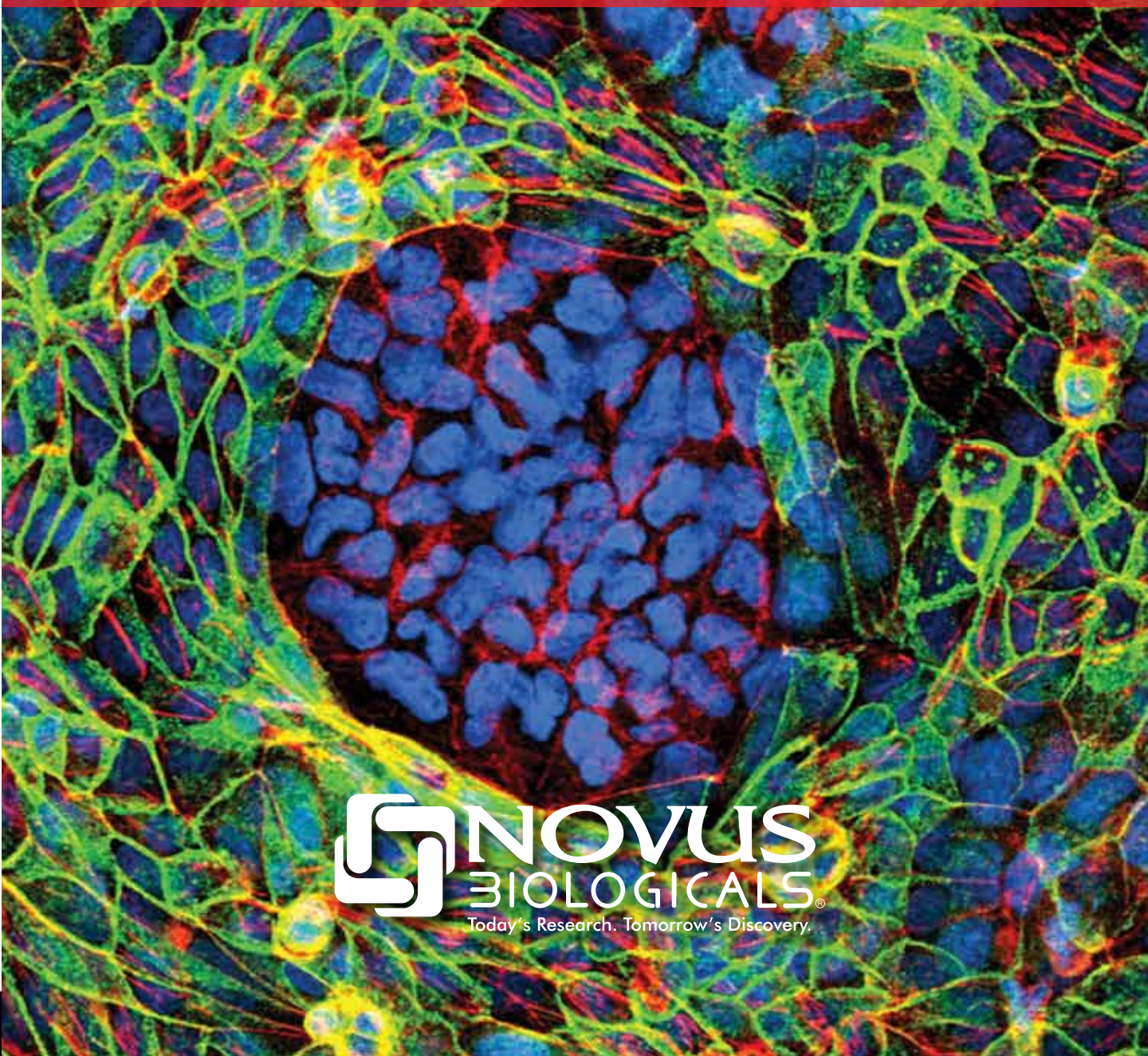


CATALOG OF ANTIBODIES FOR

CANCER RESEARCH



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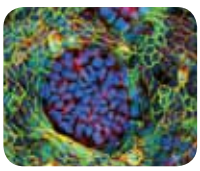
Application Key

ChIP - Chromatin Immunoprecipitation
DB - Dot Blot
ELISA - Enzyme-linked Immunosorbent Assay
FACS - Fluorescent Activated Cell Sorting
IA - Immunoassay
ICC - Immunocytochemistry
IF - Immunofluorescence
IHC - Immunohistochemistry
IHC-Fr - Immunohistochemistry Frozen
IHC-P - Immunohistochemistry Paraffin
IM - Immunomicroscopy
IP - Immunoprecipitation
PEP-ELISA - Peptide ELISA
WB - Western Blot

Reactivity Key

Bb - Baboon
Bv - Bovine
Ca - Canine
Ch - Chicken
Dr - Drosophila
Eq - Equine
Fe - Feline
Fi - Fish
Ft - Ferret
Gt - Goat
Gp - Guinea Pig
Ha - Hamster
Hu - Human
Ma - Mammal
Mk - Monkey
Mu - Mouse
Po - Porcine
Rb - Rabbit
Rt - Rat
Sh - Sheep
Xp - Xenopus
Ze - Zebra Fish



Cover Image: Immunofluorescent staining of epithelial carcinoma. Actin cytoskeleton (red), epithelial cells stained by E-cadherin (green), nuclei (blue).

Cancer Research

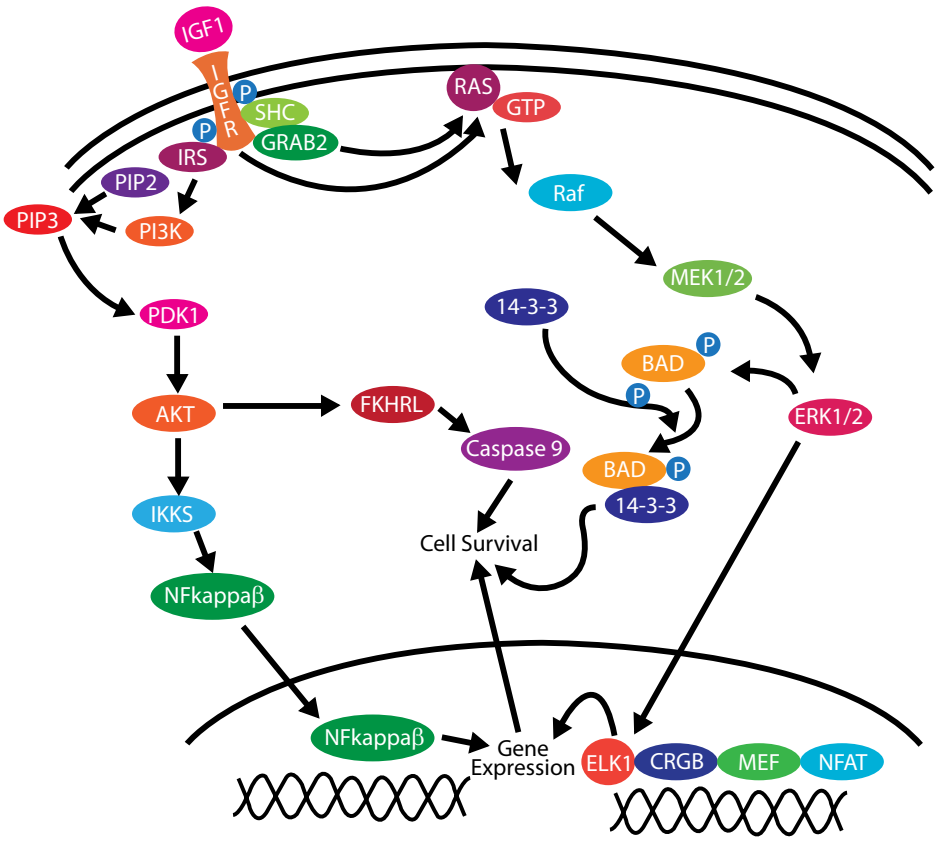
In 1971, President Nixon declared war on cancer, signing the National Cancer Act into law. Over one hundred billion dollars and countless research hours later, the war continues. Research efforts are making great strides in understanding the underlying mechanisms of cancer, how it begins, and how it progresses.

The greatest successes include: mapping the human genome and the resulting comprehension of the complexities of the various pathways controlling cellular growth, metabolism and subsequent death. The interaction of pressures in combination with genetic causality is also better understood. Early cancer screening, the benefits of a healthy diet and exercise, and a better understanding of harmful activities like smoking have greatly affected the mortality rate of most cancers.

There have been numerous studies on the economic cost of cancer. That cost is staggering; it accounts for an estimated 5% of total medical expenditures. The National Cancer Institute estimates that over 1.5 million Americans will be diagnosed with cancer and more than half a million will die from the disease in 2010.

Cell Survival Pathway

Understanding the pathways of cell survival is an important piece in the war against cancer. Many of these pathways are under investigation in hopes that one day a more targeted and less destructive treatment strategy can be discovered.

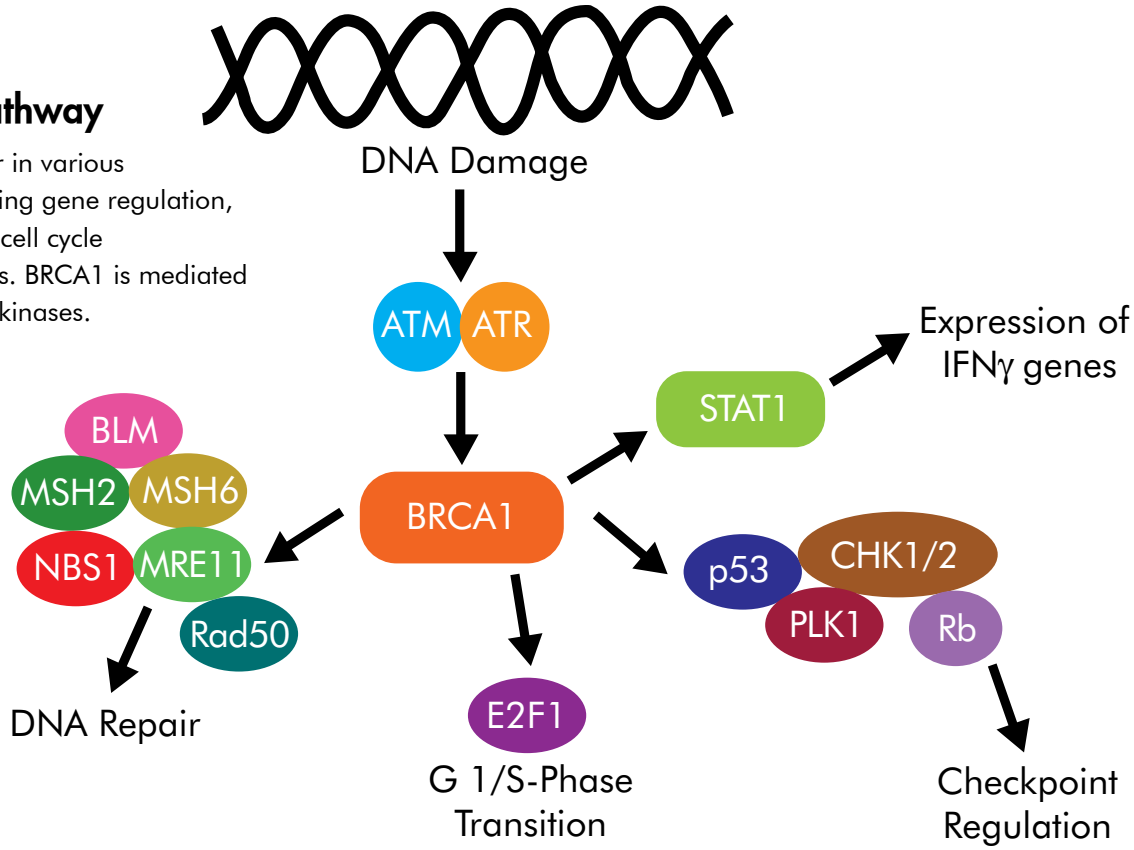


Breast Cancer

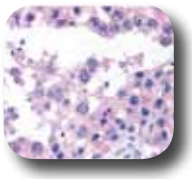
Excluding non-melanoma skin cancer, breast cancer is the most common type of cancer affecting women, regardless of ethnicity. In 2010, over 250,000 women in the United States were diagnosed with breast cancer. There are many risk factors for breast cancer, including: exposure to radiation, estrogen levels, and gene mutations. However, the greatest risk factors are gender, age, and family history. Both inherited and somatic mutations in the genes BRCA1 and BRCA2 have been found to be directly correlated with breast cancer risk. These genes participate in transcriptional regulation and assist in repairing double-stranded breaks in DNA.

ATM/ATR Pathway

BRCA1 is a factor in various processes, including gene regulation, DNA repair, and cell cycle checkpoint arrests. BRCA1 is mediated by ATM and ATR kinases.



ATM Antibody
NB100-104



Immuno-histochemical analysis of human testis (seminiferous tubule) using NB100-104.

Species: Hu
Applications: IHC, IF, IP, WB

ATM Antibody
NB100-271

Western blot analysis of HeLa whole cell lysate using NB100-271.

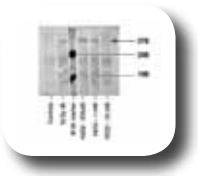
Species: Hu, Mu
Applications: ICC, IP, WB

ATM (5C2) Antibody
NB100-220

Western blot analysis of Raji whole cell extract (lane 1) and T24 syncronized cell lysate (lane 2) using NB100-220.

Species: Hu, Mk, Mu, Rt
Applications: IF, WB

ATM Kinase (10H11.E12) [Ser1981] Antibody
NB100-306



Western blot analysis of human fibroblasts using NB100-306.

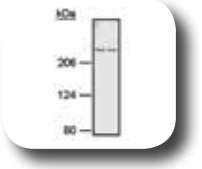
Species: Hu, Rt, Mu
Applications: ICC, WB

ATR (2B5) Antibody
NB100-308

Western blot analysis of Raji whole cell extracts using NB100-308.

Species: Hu
Applications: IF, IP, WB

ATR Antibody
NB100-322



Western blot analysis of human ATR in HeLa and U205 cell lysates using NB100-322.

Species: Hu, Mu
Applications: WB

Inhibitors of Breast Cancer

Breast cancer inhibitors mediate DNA repair and checkpoint regulation in cells with DNA damage. Down-regulation or mutations of these genes increase the risk for breast cancer. Detecting mutations in these genes has numerous implications, including the ability to pre-screen for breast cancer and predict the severity. Individuals with a family history of breast cancer can currently be screened for mutations of the BRCA1 and BRCA2 genes, allowing for earlier detection and improved prognosis.

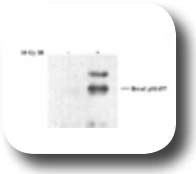
BRCA1 and BRCA2

BRCA1 is a nuclear protein and the most frequently mutated gene involved in breast cancer. Several functions have been ascribed to BRCA1, including DNA repair, ubiquitination, apoptosis, transcriptional regulation, genome surveillance, chromatin remodeling and cell cycle checkpoint arrests. BRCA2 functions upstream of the BRCA1 pathway by promoting FA-complex assembly and FANCD2 activation, but may function downstream as well by transducing signals from FA proteins to Rad51.

BRCA Antibodies

Catalog #	Product (Clone)	Host	Type	Application	Species
NB100-199	BRCA1	Rabbit	Polyclonal	IP, WB	Hu
NB100-599	BRCA1 (KEN)	Mouse	Monoclonal	WB, IP, IF	Hu
NB100-600	BRCA1 (MU)	Mouse	Monoclonal	WB, IP, IF	Hu
NB100-598	BRCA1 (RAY)	Mouse	Monoclonal	WB, IP, IF	Hu
NB100-229	BRCA1 [Ser1189]	Rabbit	Polyclonal	WB	Hu
NB100-224	BRCA1 [Ser1280]	Rabbit	Polyclonal	WB, IP	Hu
NB100-225	BRCA1 [Ser1387]	Rabbit	Polyclonal	WB	Hu
NB100-226	BRCA1 [Ser1423]	Rabbit	Polyclonal	FACS, WB	Hu, Mu
NB100-227	BRCA1 [Ser1457]	Rabbit	Polyclonal	WB, IP	Hu
NB100-228	BRCA1 [Ser1466]	Rabbit	Polyclonal	WB	Hu
NB100-200	BRCA1 [Ser1524]	Rabbit	Polyclonal	WB, IP	Hu
NB600-417	BRCA2	Rabbit	Polyclonal	IP	Hu
41180002	BRCA2	Rabbit	Polyclonal	ELISA	Hu
NBP1-41187	BRCA2 (9D3)	Mouse	Monoclonal	IP, WB	Hu

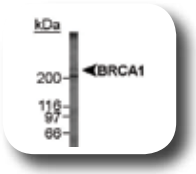
BRCA1 [Ser1457] Antibody
NB100-227



Species: Hu
Applications: IP, WB

Western blot analysis of BRCA1 in HeLa cells using NB100-227.

BRCA1 Antibody
NB100-600



Species: Hu
Applications: IF, IP, WB

Western blot analysis of BRCA1 in MCF-7 whole cell lysate using NB100-600.

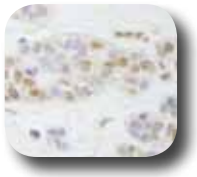
Can't Decide? Try the BRCA1 Antibody SuperNovus Pack
Catalog Number: NB100-936
Includes: NB100-598, NB100-599 and NB100-600

BLM [Thr99] Antibody
NBP1-46851

Species: Hu
Applications: WB

Western blot analysis of MDA-MB-231 cells A) not treated and B) treated with 1uM camptothecin using NBP1-46851.

PALB2 Antibody
NB100-61632



Species: Hu
Applications: IHC-P

Immuno-histochemical analysis of human breast carcinoma using NB100-61632.

BRCA-Associated Protein Antibodies

Catalog #	Product (Clone)	Host	Type	Application	Species
NB100-2256	BAAT1	Rabbit	Polyclonal	WB, IP	Hu
NB110-60521	BAP1 (1G8)	Mouse	Monoclonal	ICC, IF, WB	Hu
NB100-319	BARD1	Rabbit	Polyclonal	WB, IP	Hu
NB100-1590	Blm	Rabbit	Polyclonal	WB, IP	Mu
NB100-669	Blm (BFL-103)	Mouse	Monoclonal	WB, IHC-Fr	Hu
NBP1-46851	Blm [Thr99]	Rabbit	Polyclonal	WB	Hu
NB100-311	Chk1	Goat	Polyclonal	IP, WB	Hu
NB110-55717	Chk1 (EP691Y)	Rabbit	Monoclonal	FACS, ICC, IHC-P, WB	Hu
NB200-189	DBC1	Rabbit	Polyclonal	FACS, IHC-Fr, IHC-P	Hu
NB100-416	FANCJ	Rabbit	Polyclonal	IP, WB	Hu
NB100-350	FANCJ (GO11-3E6)	Mouse	Monoclonal	WB	Hu
NB100-189	FANCJ (pp15-IB4)	Mouse	Monoclonal	WB	Hu
NB100-1262	FOXA1	Goat	Polyclonal	IHC-P, PEP-ELISA, WB	Hu
NB100-60439	PALB2	Rabbit	Polyclonal	WB, IP	Hu
21340002	PALB2	Rabbit	Polyclonal	ELISA, IHC	Hu
NB100-2346	RAP80	Rabbit	Polyclonal	IP, WB	Hu
NB110-37258	SLIRP	Rabbit	Polyclonal	WB	Hu, Mk

Proteins Contributing to Breast Cancer

Unrepaired DNA damage can lead to senescence, apoptosis, or unregulated cell division, which may cause various genes to develop mutations or become over-expressed. This contributes to breast cancer by promoting cancer cell invasion and motility, as well as the deregulation of cell growth pathways.

ErbB-2

HER2/neu, also known as ErbB-2, is a proto-oncogene that is a member of the EGFR family. Its gene product is normally involved in the signal transduction pathways leading to cell growth and differentiation. Approximately 25-35% of breast cancers have an amplification of the ErbB-2 gene, which is associated with increased disease recurrence and a more severe prognosis.

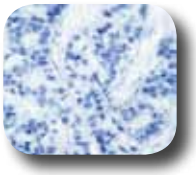
Catalog#	Product (Clone)	Host	Type	Application	Species
NB200-301	AIB1 (AC3)	Mouse	Monoclonal	IP, IHC, ICC, WB	Hu
NB110-40681	BCAS2	Rabbit	Polyclonal	IHC-P, IP, WB	Hu, Mu
NB110-40823	Bmi1	Rabbit	Polyclonal	ICC, IF, WB	Bv, Ch, Fe, Hu, Mk, Mu, Rb, Rt, Ze
NB600-487	Bmi1	Goat	Polyclonal	ELISA, WB, IF	Hu, Mu, Rt, Ca, Fe
NB100-81960	ErbB 2 [Tyr1248]	Rabbit	Polyclonal	IF, ICC, IHC-P, WB	Hu, Rt, Mu
NB100-1710	ErbB2	Rabbit	Polyclonal	IHC, WB	Hu
NB110-57022	ErbB2(EP1045Y)	Rabbit	Monoclonal	FACS, IHC-P, IP, WB	Hu
NB110-61008	ErbB 2 (mm0042-1K11)	Mouse	Monoclonal	IHC-P, WB	Hu
NB100-91809	ErbB 2	Rabbit	Polyclonal	ELISA, IHC-P, WB	Hu, Rt, Mu
NB100-1027	GRB7	Goat	Polyclonal	WB	Hu
NB110-58358	YAP1	Rabbit	Polyclonal	ICC, IF, IHC-P, IP, WB	Hu
NB100-41373	ZNF364	Goat	Polyclonal	PEP-ELISA, WB	Hu

ErbB-2 Antibody
NB100-1710

Western blot analysis of human ErbB-2 on HeLa and 293T whole cell lysates using NB100-1710.

Species: Hu
Applications: IHC, WB

ErbB-2 [p Tyr1248] Antibody
NB100-81960



Immuno-histochemical analysis of human breast carcinoma tissue using NB100-81960.

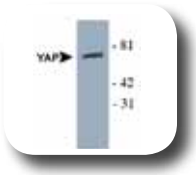
Species: Hu, Mu, Rt
Applications: IF, ICC, IHC-P, WB

ErbB-2 (EP1045Y) Antibody
NB110-57022

Western blot analysis of ErbB-2 in SKBR-3 cell extracts using NB110-57022.

Species: Hu
Applications: FACS, IHC-P, IP, WB

YAP1 Antibody
NB110-58358



Western blot analysis of YAP1 in transfected HEK 293 cell extracts using NB110-58358.

Species: Hu
Applications: ICC, IF, IP, WB, IHC-P

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Hormonal Metabolism and Breast Cancer

The role of hormones in breast cancer has long been an area of focus. As many as 75% of breast cancer tumors are estrogen receptor-positive, making them susceptible to hormonal therapy. Hormone receptor-negative cells grow more quickly and can only be treated by chemotherapy. Some studies have demonstrated that testosterone also plays an important role in breast cancer. Among female breast cancer survivors, those who have testosterone levels in the top 30% are over seven times more likely to suffer recurrence than those with levels in the bottom 30%. The effects of hormones, including xeno-hormones, on tumor progression will continue to be an important focus of breast cancer research.

Estrogen

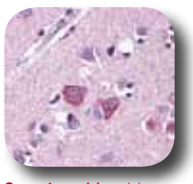
The study of estrogens and estrogen receptors, also known as estradiol receptors (ERs), is central to most breast cancer research. Estrogens play an important role in breast cancer development due to their role in stimulating breast cell division, their influence on other hormones, and their work during the critical periods of breast development. Aromatase, also known as CYP19, is the enzyme that synthesizes estrogens. Aromatase is expressed at a higher level in human breast cancer tissue than in normal breast tissue. PGC-1 beta and PELP1 are co-activators of ERs.

Aromatase Antibody
NB100-1596

Western blot analysis of of aromatasein human fetal temporal lobe lysate using NB100-1596.

Species: Hu, Mk, Bv, Eq, Rb
Applications: WB

PGC-1 beta Antibody
NB110-58858



Immuno-histochemical analysis of human cortical neurons showing cytoplasmic and nuclear staining using NB110-58858.

Species: Hu, Mu
Applications: IHC, WB

Catalog #	Product (Clone)	Host	Type	Application	Species
NB100-1596	Aromatase	Rabbit	Polyclonal	WB	Bv, Eq, Hu, Mk, Rb
NB100-93375	Aromatase	Goat	Polyclonal	ELISA, WB	Hu
AP00001PU-N	Aromatase	Rabbit	Polyclonal	IHC-P, WB	Bv, Ch, Eq, Hu, Mu, Po, Rb, Rt, Sh
NB300-1065	ER alpha	Rabbit	Polyclonal	WB, IP, ELISA	Hu, Ca, Gt, Sh, Po
NB110-56961	ER alpha (E115)	Rabbit	Monoclonal	ICC, IHC-P, WB	Hu, Mu, Rt
NB110-56962	ER alpha [Ser118] (E91)	Rabbit	Monoclonal	ICC, IHC-P, WB	Hu
NB200-305	ER beta (14C8)	Mouse	Monoclonal	ICC, IHC, IP, WB	Hu
NB110-57057	HSD17B1 (EP1682Y)	Rabbit	Monoclonal	ICC, IHC-P, WB, FACS, IP	Hu
NB110-40622	PELP1	Rabbit	Polyclonal	IP	Hu
NB200-331	PELP1	Rabbit	Polyclonal	IHC, IF, IP, WB	Hu
NB110-58858	PGC-1 beta	Rabbit	Polyclonal	WB, IHC	Hu, Mu
NB100-1569	Nucleostemin	Rabbit	Polyclonal	WB, IP	Hu, Mu

Androgens

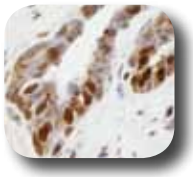
The risk of breast cancer is increased in postmenopausal women with higher androgen levels. Studies have shown that androgens can induce proliferative changes in breast tissue, and administration of both estrogen and androgens can induce tumor formation. BRCA1 is a co-activator of the androgen receptor.

Androgen Receptor Antibody
NB100-1446

Western blot analysis of androgen receptor in human brain lysates using NB100-1446.

Species: Hu
Applications: PEP-ELISA, WB

NSD1 Antibody
NB100-1744



Immuno-histochemical analysis of prostate adenocarcinoma using NB100-1744.

Species: Hu
Applications: DB, ELISA, IM, WB

Catalog #	Product (Clone)	Host	Type	Application	Species
NB100-1446	Androgen Receptor	Goat	Polyclonal	WB, PEP-ELISA	Hu
NB100-56603	Androgen Receptor [Ser210/Ser213] (156C135.2)	Mouse	Monoclonal	WB	Hu, Mk
NB300-615	Androgen Receptor (AN1-15)	Rat	Monoclonal	IP, WB, ICC, IHC-P, IHC-Fr	Hu, Mu, Rt, Mk
NB110-55462	Androgen Receptor (EP670Y)	Rabbit	Monoclonal	WB, FACS	Hu, Mu, Rt
NB120-9474	Androgen Receptor (AR 441)	Mouse	Monoclonal	IHC-P, WB	Hu
NB100-1744	NSD1	Rabbit	Polyclonal	DB, ELISA, IM, WB	Hu
NB100-2318	Pirh2	Rabbit	Polyclonal	WB, IP	Hu

Tumor Suppressors and Oncoproteins

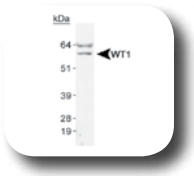
Tumor suppressors are genes whose products act to control cell division, repair damaged DNA, or trigger apoptosis. Tumor suppressors produce products that inhibit cell division if conditions for normal cell growth are violated. Inactivation of tumor suppressors leads to tumor formation because cell division proceeds uncontrollably. In contrast, oncogenes lead to tumorigenesis upon activation. Oncogenes are created when proto-oncogenes, normal genes that are involved in cell division, are mutated or over-expressed. Once activated, oncogenes cause inappropriate cellular division and result in tumor formation. The expression of oncogenes can be regulated by microRNAs. Activation of oncogenes can also be caused by mutations in these microRNAs, known as oncomirs.

Wilms' Tumor

Wilms' Tumor (WT) is the most common form of kidney cancer in children. Mutations in WT1 are present in approximately 20% of Wilms' tumors. WT1 encodes a transcription factor that is essential to the normal development of the urogenital system.

Catalog #	Product (Clone)	Host	Type	Application	Species
NB100-41383	Wilms Tumor 1	Goat	Polyclonal	PEP-ELISA, WB	Hu
NB110-60011	Wilms Tumor 1 (6F-H2)	Mouse	Monoclonal	IHC, IP, WB	Hu
NBP1-36694	Wilms Tumor 1	Rabbit	Polyclonal	IHC-P	Hu, Mu, Rt
NBP1-40787	Wilms Tumor 1 (CAN-R9(IHC)-56-2)	Rabbit	Monoclonal	WB, IHC-P	Hu
H00007490-M01	Wilms Tumor 1 (2H4)	Mouse	Monoclonal	ELISA, WB	Hu

Wilms Tumor 1 (6F-H2) Antibody
NB110-60011



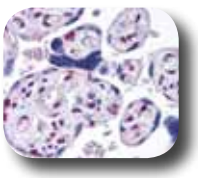
Western blot analysis of Wilms Tumor 1 in 293 cell lysate using NB110-60011.

Species: Hu
Applications: IHC, IP, WB

Damaged DNA

Many tumor suppressor proteins are also directly responsible for DNA repair. These genes are often linked to specific DNA repair disorders. DNA that has been damaged should result in either DNA repair or inhibition of cell division. DNA repair defects can result in inactivation of tumor suppressors or activation of oncogenes, causing cancer.

53BP1 Antibody
NB100-305



Immuno-histochemical analysis of human placenta using NB100-305.

Species: Hu, Mu
Applications: ICC, IF, WB

BLM Antibody
NB100-214

Western blot analysis of BLM in 293T cell extracts using NB100-214.

Species: Hu
Applications: IP, WB

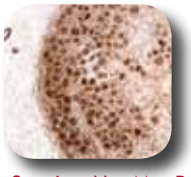
Catalog #	Product	Host	Type	Application	Species
NB100-305	53BP1	Rabbit	Polyclonal	IF, ICC, WB	Hu, Mu
NB100-304	53BP1	Rabbit	Polyclonal	IF, ICC, FACS, WB	Hu, Mu
NB100-904	53BP1	Rabbit	Polyclonal	WB, ICC	Hu, Mu
NB100-214	BLM	Rabbit	Polyclonal	IP, WB	Hu
NB100-182	FANCD2	Rabbit	Polyclonal	IF, IP, WB, IHC-P	Hu, Mu
H00007486-A01	WRN	Mouse	Polyclonal	ELISA, WB	Hu
NB100-471	WRN	Rabbit	Polyclonal	WB, IP	Hu
NB100-472	WRN	Rabbit	Polyclonal	IP, WB	Hu

Neurofibromatosis

Neurofibromatosis is a condition that causes tumors to grow on nerve tissue. The absence or alteration of the neurofibromin 1 protein may lead to neurofibromatosis type I. Neurofibromatosis type II is caused by mutations in the merlin protein, also known as neurofibromin 2.

Catalog #	Product (Clone)	Host	Type	Application	Species
NB100-93527	Merlin	Goat	Polyclonal	ELISA, IHC-P	Ze
22710002	Merlin	Rabbit	Polyclonal	ELISA	Hu
NB300-153	Neurofibromin 1 (McNFn27a)	Mouse	Monoclonal	ELISA, IP, WB	Hu, Mu, Rt, Gp
NB300-154	Neurofibromin 1 (McNfn27b)	Mouse	Monoclonal	ELISA, IHC, IP	Hu, Mu, Rt, Gp
NB300-155	Neurofibromin 1	Rabbit	Polyclonal	IHC-Fr, IHC-P, WB	Hu, Mu, Rt
NB100-418	Neurofibromin 1	Rabbit	Polyclonal	WB, IP	Hu

Neurofibromin 1 (McNFn27b) Antibody
NB300-154

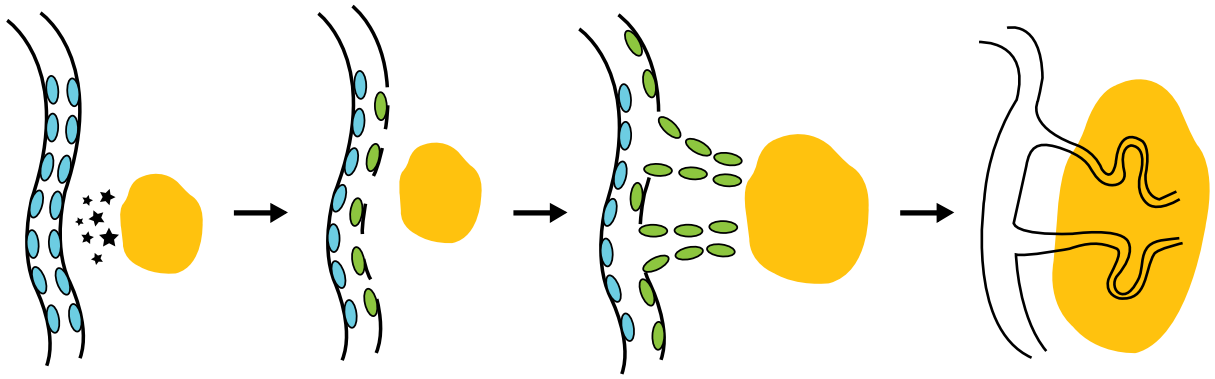


Immuno-histochemical analysis of adult human dorsal root ganglia using NB300-154.

Species: Hu, Mu, Rt, Gp
Applications: ELISA, IHC, IP

Angiogenesis in Tumor Formation

Tumors are able to grow independently of blood vessels until they reach a size of approximately 2mm. At this point, due to the lack of nutrients and gas exchange, the tumor is unable to grow further and becomes dormant. Continued growth requires that the tumor vascularize. Cancer cells are able to induce angiogenesis by secreting angiogenic factors, such as bFGF and VEGF, which activate endothelial cells. Normally, endothelial cells divide infrequently, held in check by angiogenesis inhibitors like angiostatin and endostatin. Once activated, the endothelial cells secrete matrix metalloproteinases which begin to degrade the extracellular matrix surrounding the blood vessel. The endothelial cells can then remodel the tissue. The cells continue to migrate and increase in number, organizing into discrete tubules. Eventually these tubules connect via anastomosis to form the neovasculature of the tumor.



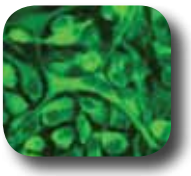
Tumor secretes angiogenic signals to activate endothelial cells.

Activated endothelial cells digest extracellular matrix and begin migrating.

Migrating endothelial cells divide, invade tumor and begin forming tubules.

Tubules close by anastomosis to form tumor neovasculature.

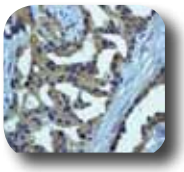
ASK1 (EP553Y) Antibody
NB110-55482



Immunofluorescent staining of HeLa cells using NB110-55482.

Species: Hu, Mu
Applications: FACS, ICC, IHC-P, WB

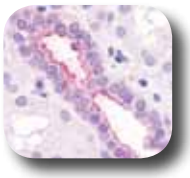
ASK1 (EP553Y) Antibody
NB110-55482



Immuno-histochemical analysis of human lung carcinoma using NB110-55482.

Species: Hu, Mu
Applications: FACS, IHC-P, WB, ICC

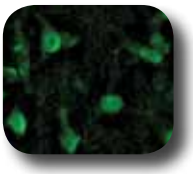
CXCR2 Antibody
NLS802



Immuno-histochemical analysis of human kidney tissue using NLS802.

Species: Hu
Applications: IHC-P

DNMT1 Antibody
NB100-264



Immuno-cytochemical analysis of DNMT1 in nuclei of HeLa cells using NB100-264.

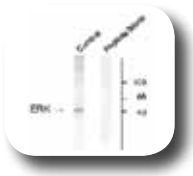
Species: Hu
Applications: IF, IP, WB, ICC

ErbB-4 (E200) Antibody
NB110-57026

Western blot analysis on MCF-7 cells using NB110-57026.

Species: Hu, Mu
Applications: FACS, ICC, IP, WB

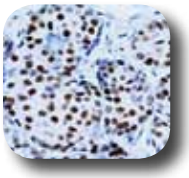
ERK1 [Thr202/Tyr204] Antibody
NB500-141



Western blot analysis of ERK/MAPK in human T47D cell lysates using NB500-141.

Species: Hu, Mu, Rt, Xp
Applications: IHC-P, WB

Estrogen Receptor Alpha (SP1) Antibody
NB110-56960



Immuno-histochemical analysis of human breast carcinoma using NB110-56960.

Species: Hu, Mu
Applications: IHC-P, IP, WB

FGF9 (FG9-77) Antibody
NB600-623

Immuno-histochemical analysis of brain tissue with no Parkinson's disease pathology using NB600-623.

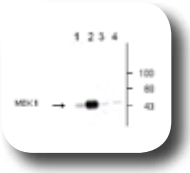
Species: Hu, Mu
Applications: DB, ELISA, WB

MEK1 (E342) Antibody
NB110-57190

Immuno-fluorescent staining of A431 cells using NB110-57190.

Species: Hu, Mu, Rt
Applications: FACS, IHC-P, IP, WB, ICC

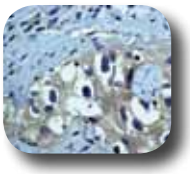
MEK1 [Thr386] Antibody
NB500-144



Western blot analysis of MEK1 in recombinant WT and mutant MEK1 cell extracts using NB100-2112.

Species: Hu
Applications: WB

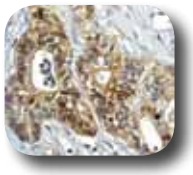
MEKK2 (EP550Y) Antibody
NB110-57194



Immuno-histochemical analysis of human breast carcinoma using NB110-57194.

Species: Hu
Applications: FACS, IHC-P, IP, WB, ICC

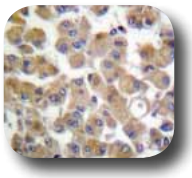
MEKK3 (EP600Y) Antibody
NB110-57195



Immuno-histochemical analysis of human ovary carcinoma using NB110-57195.

Species: Hu
Applications: FACS, IHC, IP, WB, ICC

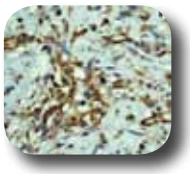
TGF Beta 1 Antibody
NBP1-67698



Immuno-histochemical analysis of human breast carcinoma tissue using NBP1-67698.

Species: Hu, Mu, Rt
Applications: ELISA, IHC, WB

VEGF (EP1176Y) Antibody
NB110-57642



Immuno-histochemical analysis of hemangioma using NB110-57642.

Species: Hu
Applications: FACS, IHC-P, IP, WB, ICC

VEGF (EP1176Y) Antibody
NB110-57642

Western blot analysis of recombinant VEGF using NB110-57642.

Species: Hu
Applications: FACS, IHC-P, IP, WB, ICC

VEGFA Antibody
NB100-2381

Western blot analysis of VEGFA doublet in CSF-IR/VEGFA chimera transfected lysate using NB100-2381.

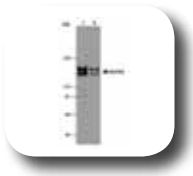
Species: Bv, Ca, Ch, Eq, Gp, Hu, Mk, Mu, Po, Rt, Sh
Applications: WB

VEGFR1 Antibody
NB100-527

Western blot analysis of chimeric CSF-1R/VEGFR-2 in transfected lysates using NB100-527.

Species: Hu, Mu
Applications: FACS, WB

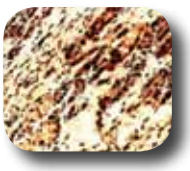
VEGFR2 Antibody
NB100-627



Western blot analysis of VEGFR2 in CSF-1/VEGFR2 transfected lysates using NB100-627.

Species: Hu, Mu
Applications: IP, WB

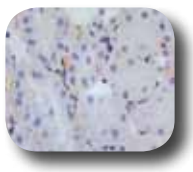
VEGFR2 Antibody
NB100-686



Immuno-histochemical analysis of human angiosarcoma using NB100-686.

Species: Hu, Mu, Rt
Applications: IF, IHC-P, IHC-Fr, WB

VEGFR2 (MM0002-2F66) Antibody
NB110-60967



Immuno-histochemical analysis of normal mouse kidney using NB110-60967.

Species: Hu
Applications: ELISA, IHC-P, WB

Activators of Angiogenesis

Angiopoietin 1
Angiopoietin 2
erbB4/HER4
ERK1
ERK1/2
ERK1/2 [Thr185/Thr202]
ERK1/2 [Thr202/Tyr204]
ERK2
FGF basic
FGF2
FGF3 (MSD1)
FGF9
HAND2
IL8
MEK1
MEK1 [Ser298]
MEK1/2 [Ser222]
MEK1/2 [Ser218/Ser222]
MEK3/6 [Ser189]
MEK4 [Ser257/Thr261]
MEK7 [Ser271/Thr275]
MEKK2
MEKK3
MEKK4
MEKK5/ASK1
MEKK6
MEKK8/COT
MKK3
MKK6
Plasminogen
TGF beta
TGF beta 1
VEGF
VEGFA
VEGFC
VEGFR1
VEGFR2
VEGFR2 [Tyr1054/Tyr1059]
VEGFR2 [Tyr1214]
VEGFR2 [Tyr951]
VEGFR3
Wilms Tumor Protein

Activated Endothelial Cells and ECM Antibodies

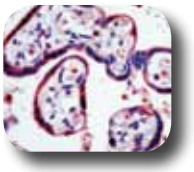
Catalog#	Product (Clone)	Host	Type	Application	Species
NB100-2054	ADAMTS2	Rabbit	Polyclonal	IHC-P, WB	Hu
NB120-18147	Actin alpha 2 smooth muscle (0.N.5)	Mouse	Monoclonal	IHC-P, IF	Ch, Hu, Mu, Rt, Rb, Bb
NB600-531	Actin alpha 2 smooth muscle	Rabbit	Polyclonal	ELISA, WB, IHC-P	Bb, Bv, Ch, Hu, Mu, Po, Rt, Rb
NB600-562	CD31 (JC/70A)	Mouse	Monoclonal	IHC-P	Hu, Rb
NB600-1011	CD105 (MJ7/18)	Rat	Monoclonal	WB, IP, FACS, IHC-Fr	Mu
NB600-408	Collagen I	Rabbit	Polyclonal	ELISA, IHC-Fr, IP, WB	Hu, Rt
AF5710	Collagen II (II-4C11)	Mouse	Monoclonal	IHC-Fr, IHC-P, WB	Hu
NB100-92162	Collagen III	Rabbit	Polyclonal	ELISA, IF, IHC-P	Hu, Mu, Rt
NB110-56989	Fibronectin (F1)	Rabbit	Monoclonal	IHC-P, IP, WB	Hu
NB110-57013	GRB2 (Y237)	Rabbit	Monoclonal	IHC-P, IP, WB, ICC	Hu, Mu, Rt
NB110-57014	GRB2 (Y301)	Rabbit	Monoclonal	FACS, IHC-P, WB, ICC	Hu, Mu, Rt
NB100-1027	GRB7	Goat	Polyclonal	WB	Hu
NB100-2677	Integrin alpha V beta 3 Antibody (23C6)	Mouse	Monoclonal	B/N, FACS, IHC-Fr, IP	Hu
NB300-144	Laminin	Rabbit	Polyclonal	ICC, IHC-P, IHC-Fr, WB	Hu, Mu, Rt
NB600-883	Laminin (LAM-89)	Mouse	Monoclonal	IHC-P	Fe, Hu, Po
NB600-680	Laminin	Rabbit	Polyclonal	ELISA, IHC	Hu
NB200-113	MMP2 (2C1)	Mouse	Monoclonal	ELISA, ICC, IHC, IP, WB	Hu, Mu, Rt
NB200-114	MMP2 (8B4)	Mouse	Monoclonal	ELISA, ICC, IHC-Fr, IHC-P, IP, WB	Hu, Mu, Rt
NB110-57221	MMP3 (EP1186Y)	Rabbit	Monoclonal	IHC-P, WB, ICC	Hu, Mu, Rt
NB600-1134	MMP3 (SPM293)	Mouse	Monoclonal	IF, WB, ICC, IHC-P	Hu
NB600-1069	MMP7	Goat	Polyclonal	PEP-ELISA, WB	Hu
NBP1-40610	MMP9 (EP1254)	Rabbit	Monoclonal	FACS, ICC, IHC-P, WB	Hu, Rt
NB110-5919	MMP13 (VIIIA2)	Mouse	Monoclonal	IHC-P, IP	Hu, Mu, Rt
NB600-1518	MMP19	Rabbit	Polyclonal	ELISA, IHC-P, IP, WB	Hu
NB100-1604	Nestin	Chicken	Polyclonal	ICC, IHC-P, WB	Mu
NB300-265	Nestin	Rabbit	Polyclonal	WB	Hu
NBP1-26598	Nestin	Rabbit	Polyclonal	IP, WB	Hu
NB300-265	Nestin	Rabbit	Polyclonal	WB	Hu
NB300-266	Nestin (10C2)	Mouse	Monoclonal	FACS, ICC, IF, IHC-Fr, IHC-P, WB	Hu
NB100-60458	ROBO1	Rabbit	Polyclonal	WB, IP	Hu
NB110-58778	ROBO4	Rabbit	Polyclonal	IHC-P, WB	Hu
NB110-58780	ROBO4	Rabbit	Polyclonal	IHC-P, WB	Hu
NB100-74358	TEM8	Rabbit	Polyclonal	IHC-P, WB	Mu
NBP1-42317	Tenascin C (DB7)	Mouse	Monoclonal	IF, IHC-Fr, IHC-P, WB	Hu, Rt
NB100-53794	ZMPSTE24	Goat	Polyclonal	PEP-ELISA, WB	Hu
NB100-2387	ZMPSTE24	Rabbit	Polyclonal	WB	Hu, Mk, Mu, Ze
NB100-2388	ZMPSTE24	Rabbit	Polyclonal	WB	Hu

Laminin Antibody
NB300-144

Immuno-histochemical analysis of rat spinal cord and dorsal root tissue using NB300-144.

Species: Hu, Mu, Rt
Applications: ICC, IHC-P, IHC-Fr, WB

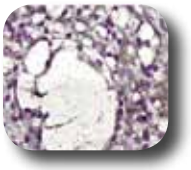
MMP1 Antibody
NB600-1192



Immuno-histochemical analysis of human placenta using NB600-1192.

Species: Hu
Applications: IHC-P

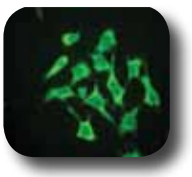
MMP2 (8B4) Antibody
NB200-114



Immuno-histochemical analysis of human ovary tissue using NB200-114.

Species: Hu, Rt, Mu
Applications: ELISA, ICC, IHC-Fr, IP, IHC-P, WB

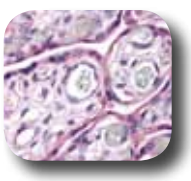
MMP9 Antibody
NBP1-40610



Immuno-fluorescent analysis of HeLa cells using NBP1-40610.

Species: Hu, Rt
Applications: FACS, ICC, IHC-P, WB

ROBO4 Antibody
NB110-58780



Immuno-histochemical analysis of human placental epithelial cells and trophoblasts using NB110-58780.

Species: Hu
Applications: IHC-P, WB

ROBO4 Antibody
NB110-58778

Western blot analysis of ROBO4 in HUVEC cell extracts using NB110-58778.

Species: Hu
Applications: WB, IHC-P

ZMPSTE24 Antibody
NB100-2388

Western blot analysis of ZMPSTE24 in human testis using NB100-2388.

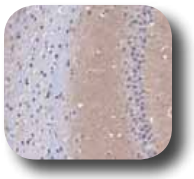
Species: Hu
Applications: WB

Inhibitors of Angiogenesis

Members of the BAI family are transmembrane proteins that demonstrate anti-angiogenic activity. The inhibitory activity of BAI1 is believed to occur by the proteolytic cleavage and release of the extracellular domain. The resulting 120kDa fragment, termed vasculostatin, appears to inhibit the migration of endothelial cells and reduce angiogenesis. BAI1 is primarily expressed in the brain, and decreases in expression have been observed in association with ischemia-induced angiogenesis. BAI2 and BAI3 are more widely distributed, with moderate expression in the brain and other tissues. Another anti-angiogenic family of proteins, TIMP, functions by inhibiting the matrix metalloproteinases, suppressing the proliferation of endothelial cells during angiogenesis. Endostatin may inhibit angiogenesis by binding to the heparan sulfate proteoglycans involved in growth factor signaling. Plasminogen is an angiogenesis inhibitor that blocks neovascularization and growth of experimental primary and metastatic tumors *in vivo*.

Catalog #	Product (Clone)	Host	Type	Application	Species
NB110-81586	BAI1	Rabbit	Polyclonal	IHC-P	Hu, Mu
NBP1-00723	BAI1	Rabbit	Polyclonal	ELISA, FACS, IF, IHC-P, WB	Hu, Mu
NLS981	BAI2	Rabbit	Polyclonal	IHC-P	Hu
H00000576-A01	BAI2	Mouse	Polyclonal	ELISA, WB	Hu
NLS978	BAI3	Rabbit	Polyclonal	IHC-P	Hu
H00000577-A01	BAI3	Mouse	Polyclonal	ELISA	Hu
NB100-91750	Endostatin	Rabbit	Polyclonal	ELISA, IHC-P, WB	Hu, Mu, Rt
NB120-10604	Endostatin (91318)	Rat	Monoclonal	ELISA, WB	Mu
NB110-7921	Plasminogen (3C2)	Mouse	Monoclonal	ELISA, IHC-P, IP	Hu
NB600-930	Plasminogen	Goat	Polyclonal	ELISA, IP, WB	Hu
NB300-544	Plasminogen	Rabbit	Polyclonal	WB	Hu, Mu, Rt
NB100-1916	TIMP1	Rabbit	Polyclonal	IHC-P	Hu
NB110-59962	TIMP1 (EP1549RY)	Rabbit	Monoclonal	WB	Hu
NB600-1481	TIMP2	Rabbit	Polyclonal	IHC-Fr, IHC-P	Hu
NB110-1483	TIMP3	Rabbit	Polyclonal	IHC-Fr, IHC-P	Hu, Mk, Rb
NB100-92109	TIMP4	Rabbit	Polyclonal	ELISA, IHC-P, WB	Hu, Mu, Rt
NBP1-28619	TIMP4 (SB30c)	Mouse	Monoclonal	IHC-Fr, WB	Hu

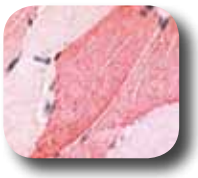
BAI1 Antibody
NB110-81586



Immuno-histochemical analysis of mouse brain using NB110-81586.

Species: Hu, Mu
Applications: IHC-P

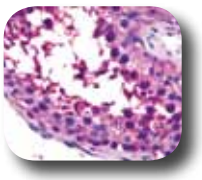
BAI2 Antibody
NLS981



Immuno-histochemical analysis of skeletal muscle (myocytes) using NLS981.

Species: Hu
Applications: IHC-P

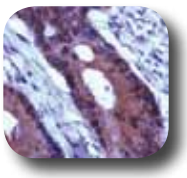
BAI3
NLS978



Immuno-histochemical analysis of brain using NLS978.

Species: Hu
Applications: IHC-P

TIMP1 Antibody
NB100-1916



Immuno-histochemical analysis of human colon carcinoma using NB100-1916.

Species: Hu
Applications: IHC-P

TIMP2 Antibody
NB100-92000

Western blot analysis of TIMP2 in extracts from A549 cells using NB100-92000.

Species: Hu, Mu, Rt
Applications: ELISA, IF, WB

Endostatin and Tumor Suppression

Endostatin, the C terminal fragment of collagen XVIII, is a potent inhibitor of angiogenesis and tumor growth that functions by preventing endothelial proliferation. Recent studies show that endostatin induces tyrosine kinase activity and enhances apoptosis in FGF-treated endothelial cells. According to Wang, et al; endostatin was used in Phase I, II, and III trials as an anti-tumor agent. (PMID: 21108883)

Endostatin Antibody
NB100-91750

Immuno-histochemical analysis of human lung carcinoma tissue using NB100-91750.

Species: Hu, Mu, Rt
Applications: IHC-P, ELISA, WB

Hypoxia and Cancer

Hypoxia, a state of decreased oxygen availability, is a major feature of solid tumors. Ischemic conditions increase treatment resistance and favor tumor progression. Hypoxia initiates a cascade of cellular changes that allow tumor cells to continue proliferating; however, if too severe, hypoxia can lead to cell death, as indicated by the presence of a central necrotic zone in some tumors. Massive tumor cell proliferation distances cells from the vasculature, causing a local deficiency of blood carrying oxygen and nutrients. Such hypoxic conditions induce a molecular response in both normal and neoplastic cells, driving the activation of a key transcription factor, the hypoxia-inducible factor (HIF). HIF is an alpha/beta heterodimeric transcription factor which binds to hypoxia-response elements (HREs) to transactivate a number of genes involved in the adaptation to the hypoxic environment. Although recognized as a major contributor to cancer progression and treatment failure, Brahimi-Horn, et al. explained that the precise role of hypoxia signaling in cancer and prognosis requires further research (PMID: 18026916).

In The News

[Beclin 1 NB500-249] Belibi F, Zafar I, Ravichandran K, et al. Hypoxia-inducible factor 1{alpha} (HIF-1 {alpha}) and autophagy in polycystic kidney disease (PKD). Am J Physiol Renal Physiol. 2011. [PMID 21270095]

[HIF-2 alpha NB100-122] Chen C, Ma Q, Ma X et al. Association of Elevated HIF-2a Levels with Low Beclin 1 Expression and Poor Prognosis in Patients with Chondrosarcoma. Ann Surg Oncol. 2011 Feb 16. [PMID: 21327823]

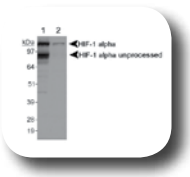
HIF

HIF-1 is a heterodimer composed of alpha and beta subunits. Both units are constantly translated; however, under normoxic conditions, human HIF-1 alpha is hydroxylated by a set of HIF prolyl hydroxylases. Hydroxylated HIF-1 alpha is polyubiquitinated and degraded via the ubiquitin-proteasome pathway. Under hypoxic conditions, the lack of hydroxylation prevents HIF degradation, leading to an increase in the concentration of HIF-1 alpha in the cell. HIF-2 alpha is predominantly expressed in highly vascularized tissues of adult humans and in endothelial cells of the embryonic and adult mouse, whereas HIF-1 alpha functions primarily in extravascular tissues.

Catalog#	Product (Clone)	Host	Type	Application	Species
NB100-449	HIF-1 alpha	Rabbit	Polyclonal	FACS, IHC-P, IP, WB	Fi, Hu, Mk, Mu, Rt
NB100-134	HIF-1 alpha	Rabbit	Polyclonal	ChIP, IHC, IHC-P, WB	Hu, Mk, Mu, Rt
NB100-479	HIF-1 alpha	Rabbit	Polyclonal	ICC, IF, IHC-Fr, IHC-P, WB	Hu, Mk, Mu, Rt
NB100-131	HIF-1 alpha (ESEE122)	Mouse	Monoclonal	ICC, IF, IHC-Fr, IHC-P, IP, WB	Bv, Ca, Hu, Mu, Rt
NB100-105	HIF-1 alpha (H1alpha67)	Mouse	Monoclonal	ChIP, ICC, IF, IHC-Fr, IHC-P, IP, WB	Bv, Ft, Hu, Mk, Mu, Po, Rb, Rt, Sh
NB100-123	HIF-1 alpha (H1alpha67)	Mouse	Monoclonal	IF, IHC, IHC-P, IP, WB	Bv, Ft, Hu, Mk, Mu, Po, Rt, Sh
NB100-130	HIF-1 alpha (H1alpha 67-7)	Mouse	Monoclonal	WB	Hu
NBP1-02160	HIF-1 alpha	Rabbit	Polyclonal	WB	Bv, Ch, Hu, Mk, Mu, Po, Rt
NB100-110	HIF-1 beta	Rabbit	Polyclonal	ChIP, IHC-P, IHC, IP, WB	Bv, Ft, Hu, Mu, Rt, Sh
NB100-124	HIF-1 beta (H1beta234)	Mouse	Monoclonal	IHC-P, WB	Bv, Ft, Hu, Mu, Rt, Sh
NB100-122	HIF-2 alpha	Rabbit	Polyclonal	ChIP, ICC, IF, IHC-P, IP, WB	Fi, Hu, Mu, Rt
NB100-132	HIF-2 alpha (ep190b)	Mouse	Monoclonal	FACS, IHC-P, WB	Hu, Mu, Rt
NB100-2287	HIF-3 alpha	Rabbit	Polyclonal	WB	Mu
NB100-2529	HIF-3 alpha	Rabbit	Polyclonal	IP, WB	Hu, Mu

Can't Decide? Try a HIF Antibody Pack
NB100-905 • HIF-1 Alpha Antibody Pack (5 vials)
NB100-982 • HIF-1 Beta Antibody Pack (2 vials)

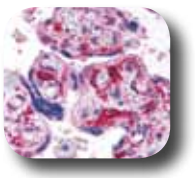
HIF-1 alpha Antibody
NBP1-02160



Western blot analysis of HIF-1 alpha using NBP1-02160. Lane 1: COS7 CoCl treated cells, Lane 2: COS7 untreated cells.

Species: Bv, Ch, Hu, Mu, Po, Mk, Rt
Applications: WB

HIF-1 alpha Antibody
NB100-479



Immuno-histochemical analysis of human placental villi using NB100-479.

Species: Hu, Mu, Mk, Rt
Applications: ICC, IF, IHC-Fr, IHC-P, WB

★★★★★
5 star review by customer

HIF Regulation

HIF prolyl hydroxylation regulates proteolytic degradation of HIF, whereas Factor Inhibiting HIF-1 modulates interaction with transcriptional co-activators. Because the HIF-hydroxylases absolutely require molecular oxygen, this process is suppressed under hypoxic conditions, allowing HIF-1 alpha to escape degradation and activate transcription. Factor Inhibiting HIF-1 represses HIF-1 transcriptional activity by binding to VHL, which acts as a transcriptional co-repressor.

Catalog#	Product	Host	Type	Application	Species
NB100-428	Factor Inhibiting HIF-1	Rabbit	Polyclonal	IHC, IP, WB	Hu, Rt
NBP1-30333	Factor Inhibiting HIF-1 (162c)	Mouse	Monoclonal	IHC-P, WB	Hu
NB100-310	HIF Prolyl Hydroxylase 1	Rabbit	Polyclonal	WB	Hu, Mu
NB100-138	HIF Prolyl Hydroxylase 2	Rabbit	Polyclonal	FACS, WB	Hu
NB100-137	HIF Prolyl Hydroxylase 2	Rabbit	Polyclonal	FACS, WB	Hu
NB100-2219	HIF Prolyl Hydroxylase 2	Rabbit	Polyclonal	ICC, IF, IHC, IP, WB	Mu
NB100-303	HIF Prolyl Hydroxylase 3	Rabbit	Polyclonal	WB	Hu, Mu
NB100-139	HIF Prolyl Hydroxylase 3	Rabbit	Polyclonal	FACS, IP, WB	Hu
NBP1-22574	HIF Prolyl Hydroxylase 3 (A1.10)	Mouse	Monoclonal	WB	Hu
NB100-295	HIF Prolyl Hydroxylase 4	Rabbit	Polyclonal	WB	Hu
NB100-485	VHL	Rabbit	Polyclonal	WB	Hu
NB100-488	VHL	Rabbit	Polyclonal	WB	Rt
NB100-1899	VHL	Rabbit	Polyclonal	PEP-ELISA, IHC-P, WB	Hu

SAMPLE PACKS AND SUPERNOVUS PACKS

Sample packs include different sample size antibodies to the same protein. These packs provide a convenient way to determine the optimal antibody for your specific species and tissues. SuperNovus packs include different full size antibodies to the same protein, giving you the ability to test different antibodies at a reduced price.

HIF Sample Packs:

NB100-900 • HIF-1 alpha Western Blot Antibody Sample Pack
5 different antibody samples

NB100-901 • HIF-1 alpha IHC Antibody Sample Pack
4 different antibody samples

NB100-905 • Mouse HIF-1 alpha Antibody Sample Pack
5 different antibody samples

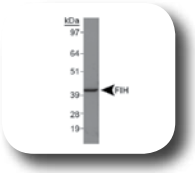
NB100-902 • HIF-2 alpha Antibody Sample Pack
2 different antibody samples

NB100-903 • HIF Prolyl Hydroxylase 1-4 Antibody Sample Pack
7 different antibody samples

HIF SuperNovus Packs:

NB100-982 • HIF-1 beta Antibody SuperNovus Pack
2 full size antibodies

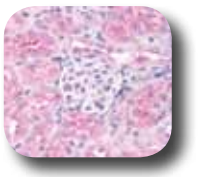
Factor Inhibiting HIF-1 (162c) Antibody
NBP1-30333



Western blot analysis in A431 cell lysates using NBP1-30333.

Species: Hu
Applications: IHC-P, WB

HIF Prolyl Hydroxylase 2 Antibody
NB100-2219



Immuno-histochemical analysis of mouse kidney cortex (renal tubular epithelium) using NB100-2219.

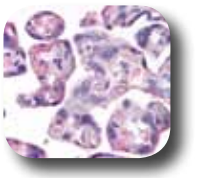
Species: Mu
Applications: ICC, IF, IHC, IP, WB

Hypoxia-Induced Metastasis

The secreted form of Lysyl Oxidase (LOX), a copper-containing amine oxidase, is responsible for the invasive properties of hypoxic human cancer cells. Thus, it is essential for hypoxia-induced metastasis and is a good therapeutic target for preventing and treating metastases.

Catalog#	Product	Host	Type	Application	Species
NB110-41568	LOPP	Rabbit	Polyclonal	ICC, IF, IHC-P, WB	Hu, Mk, Mu, Po, Rt
NBP1-30327	LOPP	Rabbit	Polyclonal	FACS, ICC, IF, WB	Hu, Rt
NBP1-30012	LOPP	Rabbit	Polyclonal	IF, IHC, WB	Hu, Mu
NB100-2530	LOX	Rabbit	Polyclonal	IHC-P, WB	Bv, Ch, Hu, Mu, Po, Rt, Xp, Ze
NB100-2527	LOX	Rabbit	Polyclonal	IHC-P, WB	Hu, Mu
NB100-2528	LOX	Rabbit	Polyclonal	WB	Bv, Hu, Mu, Rt
NB110-59729	LOX	Rabbit	Polyclonal	IHC-P, WB	Mu, Rt

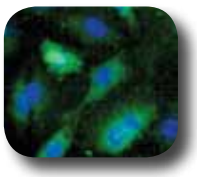
LOX Antibody
NB100-2530



Species: Hu, Mu, Rt, Bv, Po, Ch, Ze, Xp
Applications: WB, IHC-P

Immuno-histochemical analysis of human placental villi (trophoblasts) using NB100-2530.

LOX Antibody
NB110-41568



Species: Hu, Mk, Mu, Po, Rt
Applications: ICC, IF, IHC-P, WB

Immuno-histochemical analysis of HeLa cells detected with a DyLight 488 labeled secondary antibody (green) with Hoechst 33258 nuclear counterstain (blue).

Apoptosis and Cancer

Apoptosis is a form of cell death in which a programmed sequence of events leads to the elimination of cells without the release of harmful substances into the surrounding area. Apoptosis plays a crucial role in developing and maintaining health by eliminating old, unnecessary and unhealthy cells. Basic cancer research has led to the realization that apoptosis and the controlling genes have a profound effect on the malignant phenotype. Oncogenic mutations disrupt apoptosis and can lead to tumor initiation, progression or metastasis. Conversely, strong evidence indicates that other oncogenic changes promote apoptosis, thereby producing selective pressure to override apoptosis during multistage carcinogenesis. Finally, most cytotoxic anti-cancer agents induce apoptosis, introducing the possibility that defects in apoptotic systems may contribute to treatment failure. Because the same mutations that suppress apoptosis during tumor development also reduce treatment sensitivity, apoptosis provides a conceptual framework to link cancer genetics with cancer therapy. Uncovering the underlying mechanisms of apoptosis will hopefully produce new strategies to exploit apoptosis for therapeutic benefit (PMID: 10688869).

In The News

[Survivin NB500-237] Lechler P, Renkawitz T, Campean V, et al. The antiapoptotic gene survivin is highly expressed in human chondrosarcoma and promotes drug resistance in chondrosarcoma cells in vitro. BMC Cancer. 2011 Apr 2;11(1):120. [PMID: 21457573]

[Survivin NB500-201] Kim SH, Bommareddy A, Singh SV. Garlic Constituent Diallyl Trisulfide Suppresses X-Linked Inhibitor of Apoptosis Protein in Prostate Cancer Cells in Culture and In Vivo. Cancer Prev Res (Phila). 2011 Mar 16. [PMID: 21411500]

Inhibitors of Apoptosis

The Inhibitor of Apoptosis Proteins (IAPs) are anti-apoptotic proteins that bind and inhibit caspases-3, -7, and/or -9, but not caspase-8. IAPs also appear to modulate cell division, cell cycle progression, and signal transduction pathways. IAPs, such as survivin, are being investigated as diagnostic markers for the presence of malignancy. In addition, IAP over-expression is a poor prognostic marker in a variety of solid tumors and hematologic malignancies. In an article for Cancer Research, Schimmer has shown that IAPs are attractive therapeutic targets, and efforts are underway to develop antisense and chemical IAP inhibitors that may be useful for the treatment of a variety of malignancies (PMID: 15492230).

Catalog#	Product (Clone)	Host	Type	Application	Species
NB110-57030	HIAD1 (E40)	Rabbit	Monoclonal	ICC, IHC-P, IP, WB	Hu, Rt
NB100-2526	HRD1	Rabbit	Polyclonal	WB	Hu, Mu
NB500-201	Survivin	Rabbit	Polyclonal	ChIP, IF, IP, WB, ICC, IHC-P	Ca, Fe, Hu, Mu, Rt
NB500-205	Survivin (60.11)	Mouse	Monoclonal	FACS, ICC, IF, IP, WB	Hu, Mu, Rt
NB500-237	Survivin (32.1)	Mouse	Monoclonal	IF, IHC, IHC-P, WB	Hu
NB500-238	Survivin (60.11)	Mouse	Monoclonal	ICC, IHC, IHC-P, WB	Hu, Rt, Mu
NB500-236	Survivin [pThr34]	Rabbit	Polyclonal	ICC, IF, WB	Bv, Ca, Fe, Hu, Mk, Mu, Po
NB110-92717	Survivin [Ser20]	Rabbit	Polyclonal	WB	Hu
NBP1-47639	Survivin [ac Lys129]	Rabbit	Polyclonal	IF, IHC, WB	Hu

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NB100-911 • Survivin Antibody Pack (3 vials)

HIAD1 (E40) Antibody
NB110-57030

Immuno-histochemical analysis of human normal spleen using NB110-57030.

Species: Hu, Rt
Applications: IHC-P, IP, WB, ICC

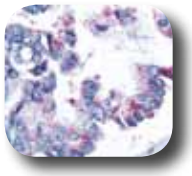
Survivin Antibody
NB500-201

Telophase with accumulation of survivin in the midbodies of two daughter cells. Detection using NB500-201.

Species: Ca, Hu, Mu, Rt, Fe
Applications: ChIP, IF, IP, WB, ICC, IHC-P

★★★★★
5 star review by customer

Survivin (32.1) Antibody
NB500-237



Immuno-histochemical analysis of human lung cancer using NB500-237.

Species: Hu
Applications: IF, WB, IHC-P

Initiators and Effectors of Apoptosis

Caspases represent one of the key components of the apoptotic mechanism. Caspases have been divided into two groups based on their pro-apoptotic function: initiators and effectors. The initiators, which include caspases-2, -8, -9, -10, and -11, activate the effectors (Caspases-3, -6, and -7), thus allowing them to cleave cellular targets leading to cell death. The expression or the down-regulation of various caspases in relation to specific cancers has been the focus of a broad range of research (PMID: 15273659).

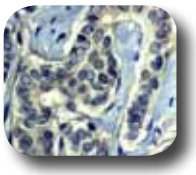
Catalog#	Product (Clone)	Host	Type	Application	Species
NB110-55463	APAF1 (E38)	Rabbit	Monoclonal	IHC-P, WB, ICC	Hu, Mu
NB100-56565	Caspase 1 (14F468)	Mouse	Monoclonal	IHC-P, WB	Hu, Mu
NB110-55655	Caspase 2 (Y61)	Rabbit	Monoclonal	FACS, WB	Hu, Mu
NB110-55656	Active Caspase 2 (Y154)	Rabbit	Monoclonal	IP, WB	Hu
NB500-210	Caspase 3 (CPP32 4-1-18)	Mouse	Monoclonal	WB	Hu
NB600-1235	Caspase 3	Rabbit	Polyclonal	IHC-P, IP, WB	Bv, Ca, Hu, Mk, Mu, Po, Rb, Rt, Sh
NB110-55661	Caspase 5 (EP876Y)	Rabbit	Monoclonal	IHC-P, IP, WB, ICC	Hu, Mu, Rt,
NB110-55662	Caspase 6 (E180)	Rabbit	Monoclonal	FACS, IHC-P, WB, ICC	Hu, Mu
NB500-206	Caspase 7 (Mch3 1-1-11)	Mouse	Monoclonal	WB	Hu, Rt, Mu
NB110-55664	Caspase 7 (E22)	Rabbit	Monoclonal	IHC-P, IP, WB, ICC	Hu
NB600-576	Caspase 8	Rabbit	Polyclonal	IHC-P, IP, WB	Bv, Hu, Mu, Mk, Rt
NB500-208	Caspase 8 (FLICE 4-1-20)	Mouse	Monoclonal	WB	Hu
NB110-57658	Caspase 9	Rabbit	Polyclonal	IHC-P, IP, WB	Bv, Hu, Mu, Rt, Sh
NB500-209	Caspase 9 (LAP6 96-2-22)	Mouse	Monoclonal	WB	Hu
NB500-233	Caspase 10	Rabbit	Polyclonal	WB	Ch, Hu, Rt, Mu
NB110-55654	pro Caspase 10 (E35)	Rabbit	Monoclonal	FACS, ICC, IHC-P, IP, WB	Hu, Mu
NB120-10454	Caspase 11 (17D9)	Rat	Monoclonal	IP, WB, IHC-Fr	Mu
NB600-1432	Caspase 12 (14F7)	Rat	Monoclonal	ICC, WB	Hu, Mu, Rt
NB100-94239	Caspase 13	Rabbit	Polyclonal	WB	Hu, Mu, Rt
NB100-1868	Caspase 14	Rabbit	Polyclonal	ChIP, FACS, IHC-P, WB	Hu

Caspase 3 (CPP32 4-1-18) Antibody
NB500-210

Western blot analysis of Capsase from HEK293 cell extract using NB500-210. Lanes 1 and 2 contain inactive and active Capsase, respectively.

Species: Hu
Applications: WB

Caspase 5 (EP876Y) Antibody
NB110-55661



Immuno-histochemical analysis of human breast carcinoma using NB110-55661.

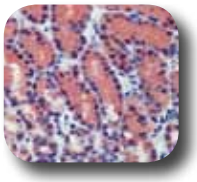
Species: Hu, Mu, Rt
Applications: IHC, IP, WB, ICC

Caspase 6 (E180) Antibody
NB110-55662

Immuno-fluorescent staining of HeLa cells using NB110-55662.

Species: Hu, Mu
Applications: FACS, IHC-P, WB, ICC

Caspase 8 Antibody
NB600-576



Immuno-histochemical analysis of human stomach stained using NB600-576.

Species: Bv, Hu, Mu, Mk, Rt
Applications: IHC, IP, WB

Colorectal Cancer

NOD2, also known as CARD15, is a member of an apoptosis regulating protein family that includes caspase recruitment-domains, as well as Apaf-1 and NOD1. NOD2 is expressed in monocytes, whereas NOD1 and Apaf-1 are expressed in multiple tissues. NOD2 has been studied in association with various forms of cancer, but mainly colorectal cancer.

NOD2 (2D9) Antibody
NB100-524

Western blot analysis of NOD2 in HT29 cell extracts using NB100-524.

Species: Hu, Mk
Applications: IHC-P, IP, WB

NOD2 Antibody
NB500-253

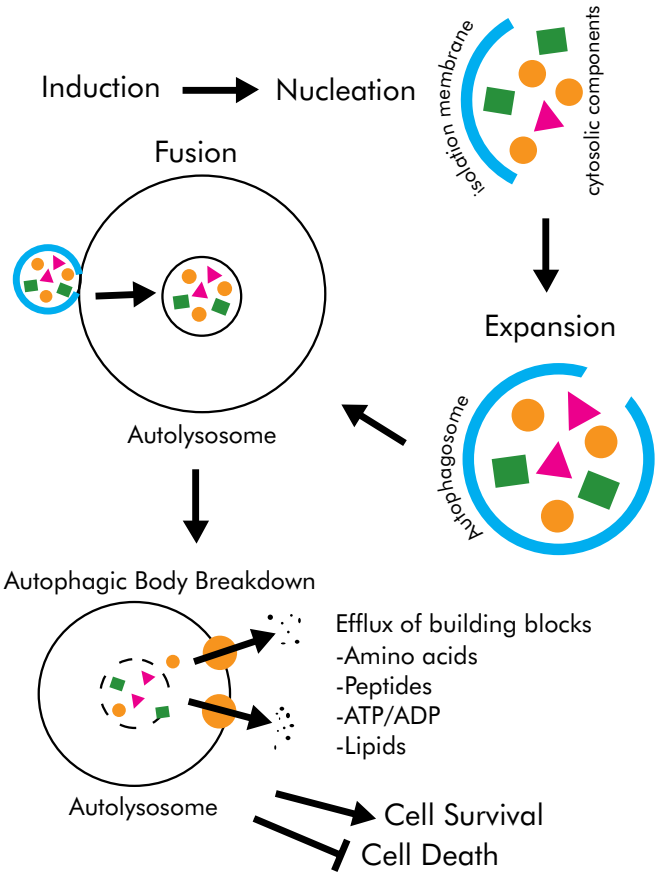
Western blot analysis of NOD2 in NOD2 transfected 293T cell lysate using NB500-253.

Species: Hu
Applications: WB

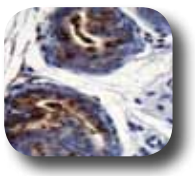
Can't Decide? Try the NOD2 Antibody SuperNovus Pack
Catalog Number: NB100-935
Includes: NB100-524 and NB500-253

Autophagy and Cancer

The link between cancer and autophagy is a rapidly growing area of research. Macroautophagy is the recycling of proteins and cellular organelles through the use of autophagosomes and lysosomes, allowing the cell to reuse its basic building blocks. Autophagy was originally thought of as a cellular maintenance program and a mechanism for cell survival during starvation. More recent studies have shown that particular autophagy proteins are suppressed or absent in many forms of cancer. For example, mice deficient in Beclin 1, a key protein in autophagy, exhibit a marked increase in tumorigenesis, indicating that autophagy may suppress tumors *in vivo* for a normally functioning organism. However, these findings are clouded by evidence showing that autophagy keeps tumor cells alive during therapies that use starvation techniques. The recent elucidation of Atg protein roles in autophagy has also given rise to the possibility of developing cancer therapies that specifically target these and other autophagy-related proteins. Autophagy plays an extremely complicated, and sometimes contradictory, role in cell survival and death. As such, the study of autophagy's link to cancer will continue to be a growing area of research in the foreseeable future.



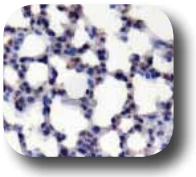
AGR2 Antibody
NBP1-05936



Immuno-histochemical analysis of mouse prostate using NBP1-05936.

Species: Bv, Hu, Mu
Applications: IHC-P, WB

Beclin 1 (4H10) Antibody
NBP1-00085



Immuno-histochemical analyis of Beclin 1 in mouse lung using NBP1-00085.

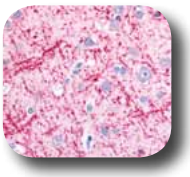
Species: Bv, Ch, Hu, Mu, Po, Mk, Rt, Eq
Applications: WB, IHC-P

Catalog#	Product (Clone)	Host	Type	Application	Species
NB100-101	APE1	Rabbit	Polyclonal	ICC, IF, IHC, IP, WB	Hu, Mu, Rt
NB100-116	APE1 (13B8E5C2)	Mouse	Monoclonal	ChIP, ICC, IF, IHC-Fr, IP	Hu, Mu, Rt
R-159-100	Apg3	Rabbit	Polyclonal	IHC-P, IF, WB	Hu, Rt
NB110-41536	ATGL	Rabbit	Polyclonal	WB	Hu, Mu
R-157-100	ATG4B	Rabbit	Polyclonal	IHC-P, IF, WB	Hu, Rt
R-156-100	ATG4C	Rabbit	Polyclonal	IHC-P, IF, WB	Hu, Rt
NB110-53818	ATG5	Rabbit	Polyclonal	IF, IHC-P, WB	Bv, Hu, Mk, Mu, Po, Rt, Xp, Ze
NB110-55474	ATG7 (EP1759Y)	Rabbit	Monoclonal	FACS, ICC, IHC-P, IP, WB	Hu
NB110-56893	ATG9A	Rabbit	Polyclonal	IHC-P, WB	Bv, Ch, Hu, Mk, Mu, Rt
NB110-60928	ATG16L1	Rabbit	Polyclonal	WB	Bv, Ca, Hu, Mk, Mu, Rt
NB110-82384	ATG16L1	Rabbit	Polyclonal	WB	Hu, Mu
NBP1-00084	Beclin 1 (1B7)	Mouse	Monoclonal	WB, IHC-P	Bv, Ch, Hu, Mu, Po, Mk, Rt, Eq
NBP1-00085	Beclin 1 (4H10)	Mouse	Monoclonal	WB, IHC-P	Bv, Ch, Hu, Mu, Po, Mk, Rt, Eq
NBP1-00088	Beclin 1 (9B6)	Mouse	Monoclonal	IHC, WB	Bv, Ch, Hu, Mu, Po, Mk, Rt, Eq
NB110-60982	Beclin 2	Rabbit	Polyclonal	WB	Hu
NB600-101	Calreticulin	Rabbit	Polyclonal	IHC, IF, WB, ICC	Bv, Hu, Mu, Rt
NB600-103	Calreticulin	Rabbit	Polyclonal	WB	Hu
NB100-616	KAT3B/p300 (RW105)	Mouse	Monoclonal	IF, IP, WB	Hu, Mu, Mk, Rt
NB110-57191	MEK1 (E237) [Ser218/Ser222]	Rabbit	Monoclonal	IHC-P, IP, WB, ICC	Hu
NB100-56449	MEK2	Rabbit	Polyclonal	WB	Hu
NB100-240	mTOR	Rabbit	Polyclonal	ICC, IP	Hu, Rt
NB100-241	mTOR	Rabbit	Polyclonal	WB	Hu, Mu, Rt
NB600-607	mTOR [Ser2448]	Rabbit	Polyclonal	ELISA, IHC-P, WB	Hu

LC3

LC3 is a mammalian homologue of Atg8. LC3 has two isoforms, LC3-I and LC3-II. LC3-I is cytosolic and involved in the microtubule-binding activity of MAP1. LC3-II is created from the conversion of LC3-I and is the only known mammalian protein to stably bind the membrane of autophagosomes. The detection of LC3-I to LC3-II conversion is a useful and sensitive marker for distinguishing autophagy in mammalian cells.

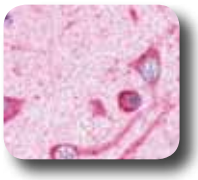
LC3 Antibody
NB100-2331



Immunohistochemical analysis of human brain, cerebral cortex, using NB100-2331.

Species: Hu, Mu, Rt, Bv, Xp, Ze
Applications: IP, IHC-P, WB

LC3 Antibody
NB100-2220



Immunohistochemical analysis of brain (cerebral cortex) and neurons with processes using NB100-2220.

Species: Hu, Mu, Rt
Applications: IHC, IHC-P IF, IP, WB

★★★★★
5 star review by customer

LC3B Antibody
NB600-1384

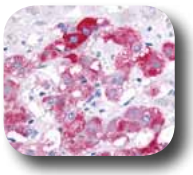
Immunohistochemical analysis of treated U373-MG (human glioblastoma) cells using NB600-1384.

Species: Hu, Mu
Applications: FACS, IF, WB, ICC, IHC-Fr

Beclin 1

Binding of Beclin 1 to the pre-Autophagosomal Structure initiates the formation of the autophagosome and is therefore required for autophagy. The absence of Beclin 1 leads to increased tumorigenesis as well as early embryonic death. Expression of the Beclin 1 protein is frequently decreased in malignant breast epithelial cells.

Beclin 1 Antibody
NB500-249

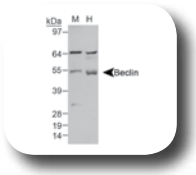


Immunohistochemical analysis of adrenal medulla using NB500-249.

Species: Hu, Mu
Applications: ICC, IF, IP, WB, IHC-P

★★★★☆
4 star review by customer

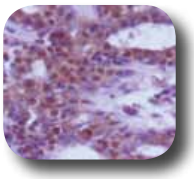
Beclin 1 Antibody
NB500-266



Western blot analysis of Beclin 1 in liver lysates using NB500-266.
Lane 1: mouse
Lane 2: human

Species: Hu, Mu
Applications: WB

Beclin 1 Antibody
NB110-87318



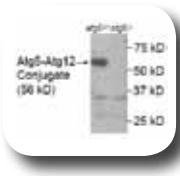
Immunohistochemical analysis of normal breast tissue using NB110-87318.

Species: Bv, Ch, Hu, Mu, Po, Mk, Rt, Xp
Applications: WB, IHC-P

ATG5

Atg5 complexes with Atg12 and is required for autophagy. Atg5 is heavily expressed in dead tumor cells, making it a marker for successful anti-cancer therapies.

ATG5 Antibody
NB110-53818



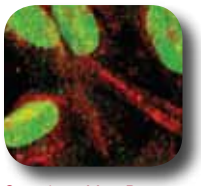
Western blot analysis of ATG5 using NB110-5381. Lane 1: mouse wildtype ES cell lysate Lane 2: mouse ATG5 KO ES cell lysate.

Species: Hu, Mu, Rt, Bv, Po, Mk, Xp, Ze
Applications: IF, IHC-P, WB

mTOR

mTOR acts as a central regulator of cell proliferation, angiogenesis, and cell metabolism. As such, it serves as a link between several important signaling pathways involved in numerous types of cancer.

mTOR Antibody
NB100-240



Immunofluorescent detection of mTOR (red) in L6 myotubes using NB100-240.

Species: Hu, Rt
Applications: IP, ICC

Abnova, Acris, biosensis, Innova, SDIX

Novus distributes for these companies:

Abnova · Acris antibodies · biosensis · Innova Biosciences · sdix

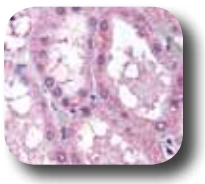
Metabolism and Cancer

The observation that cancerous cells utilize glucose at a higher rate than their non-malignant counterparts first occurred in the 1920s. The Warburg effect describes the enhanced conversion of glucose to lactate by tumor cells, even in the presence of adequate oxygen, which would ordinarily be used for oxidative phosphorylation. Recent work suggests that the metabolic shift associated with tumor cells allows the cellular metabolism to switch from biosynthesis of mitochondria for energy production to DNA synthesis allowing for cell proliferation. Several recent studies have demonstrated that obesity and other metabolic disorders significantly increase the risk of developing certain types of cancer.

NOX4

NOX4 plays a role as a redox messenger in the activation of intracellular signaling pathways that contribute to mitochondriogenesis, cell survival, and differentiation in hematopoietic stem cells. Data suggest that NOX4 provides a novel link between the insulin receptor and the generation of cellular reactive oxygen species that enhance insulin signal transduction. NOX4 NADPH oxidase activity is present in pancreatic cancer tissues. It is activated by growth factors and plays an anti-apoptotic role.

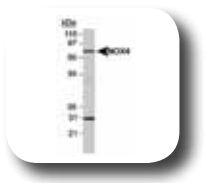
NOX4 Antibody
NB110-58849



Species: Hu, Mu, Rt, Bv, Sh, Mk
Applications: ICC, IF, IHC-P, WB

Immunohistochemical analysis of proximal convoluted tubules of the kidney using NB110-58849.

NOX4 Antibody
NB110-58851

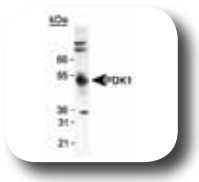


Species: Hu, Rt, Mk, Mu
Applications: ICC, IF, IHC-P, WB

Western blot analysis of NOX4 in human kidney lysate using NB110-58851.

★★★★☆
4 star review by customer

PDK1 Antibody
NB100-2383



Species: Ch, Hu, Mu, Rt
Applications: WB

Western blot analysis of PDK1 in human heart lysate using NB100-2383.

★★★★★
5 star review by customer

PDK1 Antibody
NB100-2384

Species: Bv, Ch, Hu, Mk, Mu, Po, Rt, Ze
Applications: WB

Western blot analysis of PDK1 in human heart lysate using NB100-2384.

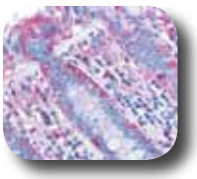
PDK1

Pyruvate dehydrogenase kinase isozyme 1 (PDK1) inhibits the mitochondrial pyruvate dehydrogenase complex via phosphorylation of the E1 alpha subunit, thus contributing to the regulation of glucose metabolism. PDK1 has been identified as a direct HIF-1 target gene in hypoxic cells. Expression of PDK1 is elevated in various cancers, including non-small cell lung cancers.

ChREBP

Carbohydrate responsive element-binding protein (ChREBP), also known as MLXIPL, is a transcription factor involved in activating genes that encode enzymes of fatty acid biosynthesis in liver and adipose tissues. ChREBP is activated in response to high glucose and binds to a glucose response element of the pyruvate kinase and lipogenesis enzyme genes. This protein is likely involved in lipid metabolism, obesity, and type 2 diabetes. Recent studies have reported ChREBP as a requirement for cell proliferation in colorectal cancer and hepatoblastoma cells, as well as certain breast cancer cell lines.

ChREBP Antibody
NB400-135



Species: Hu, Mu, Rt
Applications: ChIP, IF, WB, IHC-P

Immuno-histochemical analysis of human colon epithelium using NB400-135.

★★★★☆
4 star review by customer

ChREBP Antibody
NB400-136

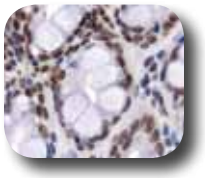
Species: Hu, Mu
Applications: IF

Immunofluorescent staining of a human hepatocyte using NB400-136. Overlay staining of ChREBP (red) and DAPI nuclear staining (blue).

GLUT1

Glucose transporters are integral membrane glycoproteins involved in the transport to glucose into most cells. There are seven types of glucose transport carrier proteins, designated GLUT1 through 7. GLUT1, also known as SLC2A1, is a major glucose transporter in the mammalian plasma membranes. It is ubiquitous and present at high levels in primate erythrocytes and brain endothelial cells. HIF-1 alpha promotes its transcription, causing GLUT1 to be highly expressed in many cancers.

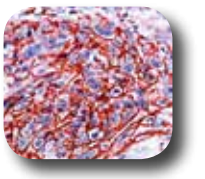
GLUT1 Antibody
NB110-39113



Species: Bv, Hu, Mk, Mu, Rb, Rt
Applications: ICC, IF, IHC-P, WB

Immunohistochemical analysis of GLUT1 in mouse intestine using NB110-39113.

GLUT1 Antibody
NB120-15310



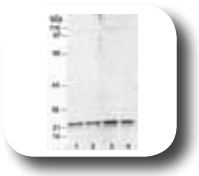
Species: Hu, Rt
Applications: IHC-P

Immunohistochemical analysis of human esophagous stained using NB120-15310.

Caveolin

Caveolae are specialized domains of the plasma membrane that are implicated in the sequestration of a variety of lipid and protein molecules. It has been suggested that these important cellular organelles play a pivotal role in such diverse biochemical processes as lipid metabolism, growth regulation, signal transduction, and apoptosis. Caveolin's role in cancer has not yet been definitely determined. While some studies have identified caveolins as tumor suppressors, there is also growing evidence that they are involved in tumorigenesis and metastasis. In most in vitro studies, Caveolin-1 acts as a tumor suppressor.

Caveolin-1 (7C8) Antibody
NB100-615



Species: Hu, Mu, Rt
Applications: FACS, IF, IHC-P, IP, WB

Western blot analysis of Caveolin-1 in 3T3 cell lysates using NB100-615.

Caveolin-1 Antibody
NB110-74687

Species: Hu, Mu, Rt
Applications: IF, IP, WB

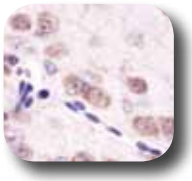
Western blot analysis of Caveolin-1 in HeLa whole cell lysates using NB110-74687.

Additional Metabolism and Cancer Antibodies

ACADM
ADFP
AMACR
ApoE4
ARH
ATF6
Cathepsin E
Caveolin 1
CBR3
Ceramide Kinase
ChREBP
CLPP
CPT1B
CYP7B1
Cyt 19
Cytochrome P450 1A1
Cytochrome P450 1A2
Cytochrome P450 2A6
Cytochrome P450 2C11
Cytochrome P450 3A4
DCXR
eIF2-alpha
GADD 34
GLUT1
GLUT4
Importin 13
Lipocalin 2
Macrophage Scavenger Receptor
MafA
MafB
MARCKS [Ser152/Ser156]
MCT2
MLN 64
MRP1
MRP4
MTCH1
ORP1
OSBP
OSBP2
OSBPL11
OSBPL2
OSBPL6
OSBPL7
OSBPL9
PADI4
PCK1/PEPCKC
PDHX
PDK1
PGAM1
PI 15
PRAS40 [Thr246]
PTEN
PTEN [Ser370]
SCARF1
SRD5A1
TXNRD1
VDAC2

New Cancer Antibodies

Aurora A Antibody
NBP1-51843

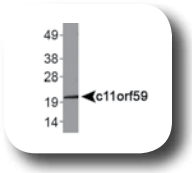


Species: Hu, Mu
Applications: IHC-P, WB

Immuno-histochemical analysis of mouse brain using NBP1-51843.

Aurora A, also known at Aurka, is a cytoplasmic serine/threonine kinase that is critical in transitioning cells through mitosis and meiosis. Aurka acts through phosphorylating several spindle and tubulin proteins. Without Aurka, axon and neuron formation are negatively impacted. When these critical cellular processes are disrupted, there is a potential for tumorgenesis, and thus Aurka is implicated in many cancers, particularly those of the blood.

C11orf59 Antibody
NBP1-71689

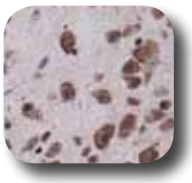


Species: Hu, Bv, Mu, Rt
Applications: ICC, IF, IHC-P, WB

Western blot analysis of c11orf59 in human liver protein using NBP1-71689.

C11orf59, also known at LAMTOR1 and p27RF-Rho, regulates the TOR pathway. C11orf59 activates RhoA and binds to CDKN1B (p27kip1) to prevent the interaction of CDKN1B and RhoA. This leaves RhoA in a form accessible to ARHGEF2, thereby promoting ARHGEF2-mediated exchange of GDP for GTP.

CD31/PECAM1 Antibody
NBP1-71663

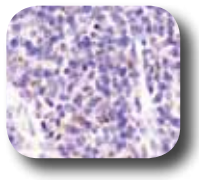


Species: Hu, Mu
Applications: IHC-P, WB

Immuno-histochemical analysis of mouse brain using NBP1-71663.

CD31, also known as platelet endothelial cell adhesion molecule 1 (PECAM1), is a type I integral membrane glycoprotein. CD31 antibodies are commonly used as endothelial markers to measure angiogenesis in association with tumor recurrence. CD31 can also be used as a marker for myeloid progenitor cells and recognize different subsets of myeloid leukemia infiltrates.

DEPDC6 Antibody
NBP1-49674

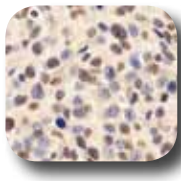


Species: Hu, Mu
Applications: ICC, IF, IHC-P, WB

Immuno-histochemical analysis of mouse spleen using NBP1-49674.

DEPDC6, also known as Deptor, interacts with the mammalian target of rapamycin (mTOR), inhibiting kinase activities and ultimately negatively regulating the downstream mTOR pathways. Because of its critical role in signaling, changes in expression levels of Deptor can lead to hyperplasia, apoptosis, and several cancers. Through mTOR interactions, Deptor is implicated in pathways for cell growth and differentiation, as well as cell-cycle prolongation or termination.

FUS Antibody
NBP1-50623

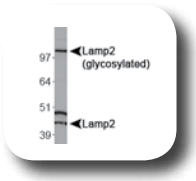


Species: Hu, Bv, Mu
Applications: ICC, IF, IHC-P, WB

Immuno-histochemical analysis of human renal cell carcinoma using NBP1-50623.

FUS is well-documented to be involved in liposarcoma, lipoma and leukemia, and it is believed that when its normal housekeeping functions related to transcription are disrupted, normal cells become cancerous.

LAMP2 Antibody
NBP1-71692



Species: Bv, Hu, Po, Rt, Mu
Applications: ICC, WB

Western blot analysis of LAMP2 in HeLa whole cell lysate using NBP1-71692.

CD107b, also known as lysosomal-associated membrane protein 2 (LAMP-2), is a heavily glycosylated, type I transmembrane protein that constitutes the major sialoglycoproteins on lysosomal membranes. The upregulation of both CD107a and CD107b on the surface of tumor cell lines has been associated with their enhanced metastatic potential, where they may increase adhesion to extracellular matrix and endothelium.

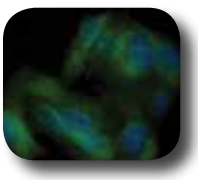
MAP2K1IP1/MAPKSP1 Antibody
NBP1-50631

Species: Hu, Mu
Applications: IF, ICC, IHC-P, WB

Western blot analysis in A431 whole cell lysates using NBP1-50631.

Due to its ability to enhance activation of MAPK2, Mapksp1 seems to enhance the efficiency of the MAP kinase cascade. It is known to bind specifically to MAP2K1/MEK1, MAPK3/ERK1, and MAPK1/ERK2. The increased efficiency of the MAP cascade directly affects the regulation of the late endosomal traffic and cell proliferation in endosomes.

MFN1 Antibody
NBP1-51841



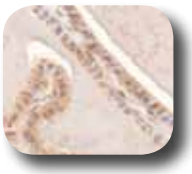
Species: Hu
Applications: IF, ICC

Immuno-cytochemical analysis of HepG2 cells using NBP1-51841.

When mitochondria are impaired by genetic mutations or viral insertions, they are selectively isolated and destroyed by complicated intracellular mechanisms. The mitochondrial fusion-promoting factor MFN1 is a critical contributor to mediating this selective process. MFN1 is ubiquitinated by PINK1 after its recruitment by Parkin, and this post-translational modification is critical in catalyzing mitochondrial repair or removal by other cellular mechanisms.

New Cancer Antibodies

MUC4 Antibody
NBP1-52193



Species: Hu, Mu
Applications: IF, ICC, IHC-P, WB

Immuno-histochemical analysis of mouse prostate using NBP1-52193.

MUC4 expression is erroneous in many carcinomas and sarcomas, including fibromyoxoid sarcoma and pancreatic adenocarcinoma. Immunohistochemical staining for MUC4 has been discussed as a potential biomarker for detection of these cancers.

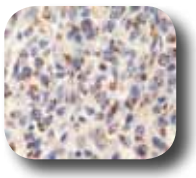
MyoD1 Antibody
NBP1-54153

Species: Hu, Mu
Applications: IF, ICC, WB

Western blot analysis in RH30 cells using NBP1-54153.

MYOD1 is a key transcription factor regulating myogenesis. Unsurprisingly, MYOD1 is then associated with several diseases of muscle groups, including infantile myofibroma, rhabdomyosarcoma, ulcerative colitis, and sclerosis. MYOD1 is also found in atypical cells of orbital pleomorphic liposarcoma in children.

ROBLD3 Antibody
NBP1-71687

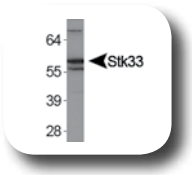


Species: Hu, Mu
Applications: IF, ICC, IHC-P

Immuno-histochemical analysis of human renal cell carcinoma using NBP1-71687.

ROBLD3, also known as MAPBPIP, belongs to the GAMAD family. It is an adapter protein that enhances the efficiency of the MAP kinase cascade and facilitates the activation of MAPK2. ROBLD3 compels the recruitment of MP1 to late endosomes where they form a very stable heterodimeric complex required for ERK activation on endosomes.

STK33 Antibody
NBP1-54156



Species: Hu, Mu
Applications: IF, ICC, IHC-P, WB

Western blot analysis of HEK293 cell lysate using NBP1-54156.

Serine Threonine Kinase 33 is a critical developmental protein that is normally expressed in embryonic and germ-line cells. However, in many malignant tissues, STK33's appearance usually indicates an increase in the cancer cell viability. In cancer cells, STK33 suppresses mitochondrial apoptosis, which precludes normal processes to identify and eliminate cancerous cells.

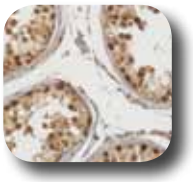
New Phospho-Specific Cancer Research Antibodies

AKT2 [Ser474]
AKT2 [Thr308]
AKT2 [Thr450]
ATF2 [Ser62]
ATF2 [Thr69]
BAD [Ser112]
BCL2 [Ser70]
BCL2 [Thr56]
BRCA1 [Ser1423]
BRCA1 [Ser1524]
CCNE1 [Thr395]
CDC25A [Ser123]
CDC25A [Ser177]
CDC25A [Ser278]
CDC25A [Ser292]
CDC25A [Ser75]
CDC25A [Thr506]
CDC25B [Ser186]
CDC25B [Ser187]
CDC25B [Ser353]
C-kit [Tyr936]
E2F1 [Ser337]
ERBB2 [Tyr1112]
ERBB4 [Tyr1162]
ERBB4 [Tyr1188]
MEK [Ser217]
MEK [Ser221]
MEK [Thr292]
MET [Ser63]
MET [Tyr1003]
MET [Tyr1234/Tyr1235]
MET [Tyr1349]
MET [Tyr1356]
MYC [Ser373]
MYC [Thr358]
MYC [Thr58]
NTRK1 [Tyr490]
NTRK1 [Tyr674/Tyr675]
NTRK1 [Tyr676]
NTRK1 [Tyr791]
p53 [Ser20]
p53 [Ser37]
PTPN7 [Ser246]
PTPN7 [Ser93]
RB1 [Ser249]
RB1 [Ser608]
RB1 [Ser612]
RB1 [Ser780]
RB1 [Ser788]
RB1 [Ser795]
RB1 [Ser807]
RB1 [Ser811]
RB1 [Thr252]
RB1 [Thr821]
RB1 [Thr826]
RPS6KB1 [Ser418]
RPS6KB1 [Ser424]
SMC1A [Ser957]
Survivin [Ser20]
Survivin [Thr34]
TP53 [Ser20]
TP53 [Ser315]
TP53 [Ser33]
TP53 [Ser37]
TP53 [Ser376]
TP53 [Ser378]
TP53 [Ser9]
TP53 [Thr18]
VEGFR2 [Tyr951]
VEGFR2 [Tyr1175]
VEGFR2 [Tyr1214]

Browse Epi-Plus™ Modified Histone Antibodies at www.novusbio.com/Epi-Plus

New Tumor Marker Antibodies

GAGE1 Antibody
H00002543-B01P



Species: Hu
Applications: ELISA, WB, IHC-P

Immuno-histochemical analysis of human testis using H000002543-B01.

This gene belongs to a family of genes that are expressed in a variety of tumors but not in normal tissues, except for the testis. The sequences of the family members are highly related but differ by scattered nucleotide substitutions. The GAGE1 cDNA contains a 143-bp insertion, located in the coding sequence near the termination codon, that is absent from the other cDNAs.The antigenic peptide YRPRPRRY, which is also encoded by several other family members, is recognized by autologous cytolytic T lymphocytes.

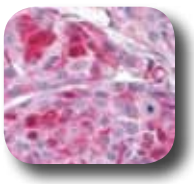
GOLPH3 Antibody
H00064083-B01P

Species: Hu
Applications:ELISA, WB

Western blot analysis in transfected 293T cell line using H00064083-B01P.

The Golgi complex plays a key role in the sorting and modification of proteins exported from the endoplasmic reticulum. The protein encoded by this gene is a peripheral membrane protein of the Golgi stack and may have a regulatory role in Golgi trafficking. Several alternatively spliced transcript variants of this gene have been described, but the full-length nature of these variants has not been determined.

MAGE-1 Antibody
NB300-1064

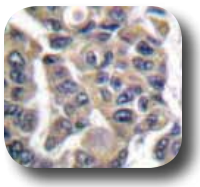


Species: Hu
Applications: ELISA, IP, WB, IHC-P

Immuno-histochemical analysis of human melanoma cells using NB300-1064.

The MAGE-1 gene is a member of the melanoma antigen encoding gene family. These genes encode for HLA-restricted tumor associated rejection antigens recognized by cytotoxic T lymphocytes. Some of these target antigens may be potentially useful for cancer specific immunotherapy. The expression of MAGE genes has been reported not only in melanoma but also in various other malignant tumors such as hepatocellular carcinoma and germ cell tumors.

MAGE-1 Antibody
NB100-91857

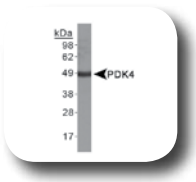


Species: Hu
Applications: ELISA, IHC-P, WB

Immuno-histochemical analysis of human breast carcinoma tissue using NB100-91857.

The MAGE-1 gene is a member of the melanoma antigen encoding gene family. These genes encode for HLA-restricted tumor associated rejection antigens recognized by cytotoxic T lymphocytes. Some of these target antigens may be potentially useful for cancer specific immunotherapy. The expression of MAGE genes has been reported not only in melanoma but also in various other malignant tumors such as hepatocellular carcinoma and germ cell tumors.

PDK4 Antibody
NBP1-07047

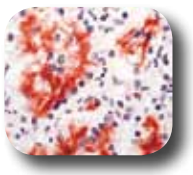


Species: Bv, Hu, Mu, Rt
Applications: WB

Western blot analysis of human heart protein lysate using NBP1-07047.

PDK4 is a mitochondrial protein with a histidine kinase domain that is a member of the PDK/BCKDK protein kinase family. This protein is located in the matrix of the mitrochondria and its expression is regulated by glucocorticoids, retinoic acid and insulin. PDK4 inhibits the mitochondrial pyruvate dehydrogenase complex by phosphorylation of the E1 alpha subunit, thus contributing to the regulation of glucose metabolism.

Renal Cell Carcinoma (gp200) (PN-15) Antibody
NB120-3128

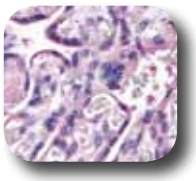


Species: Hu, Rt
Applications: WB, IHC-P

Immuno-histochemical analysis of human renal cell carcinoma stained with RCC Marker using NB120-3128.

gp200 is a surface membrane glycoprotein expressed on human embryonal carcinoma and is a malignant stem cell of testicular tumors. Reportedly, gp200 is expressed by 93% of primary and 84% of metastatic renal cell carcinomas.

Robo4 Antibody
NB110-58778

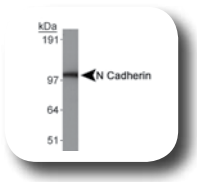


Species: Hu
Applications: WB, IHC-P

Immunohisto-chemical analysis of endothelium and trophoblasts of the placenta using NB110-58778.

Roundabouts (ROBO) are cell-surface receptors that mediate repulsive signaling mechanisms at the central nervous system midline. However, ROBOs may also mediate attraction mechanisms in the context of vascular development. Robo4 is a novel roundabout protein which is restricted in expression to endothelial cells *in vitro* and sites of angiogenesis *in vivo*. Because it is not expressed on normal endothelial cells *in vivo*, it is a promising tumor endothelial marker.

N Cadherin (13A9) Antibody
NBP1-48309



Species: Hu, Mu
Applications: IF, IP, WB

Western blot analysis of N Cadherin expression in mouse brain tissue using NBP1-48309.

N Cadherin is a calcium dependent cell-cell adhesion glycoprotein that belongs to the cadherin superfamily. N Cadherin functions during gastrulation and has also been identified as a potential prognostic marker of a number of tumors.

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