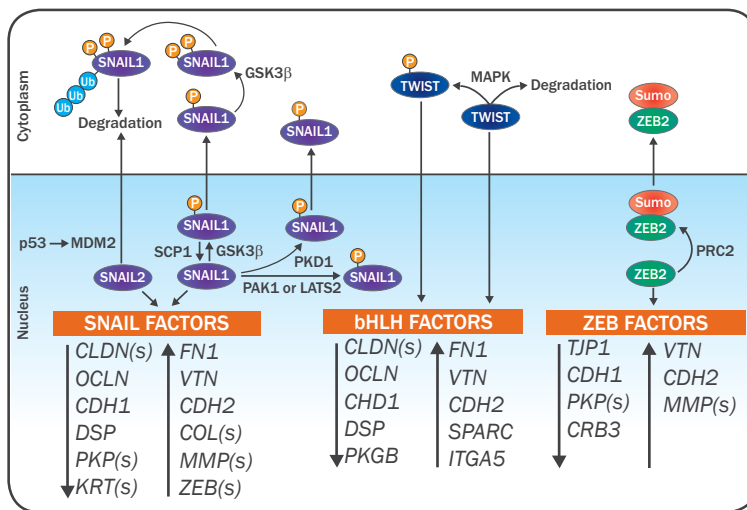
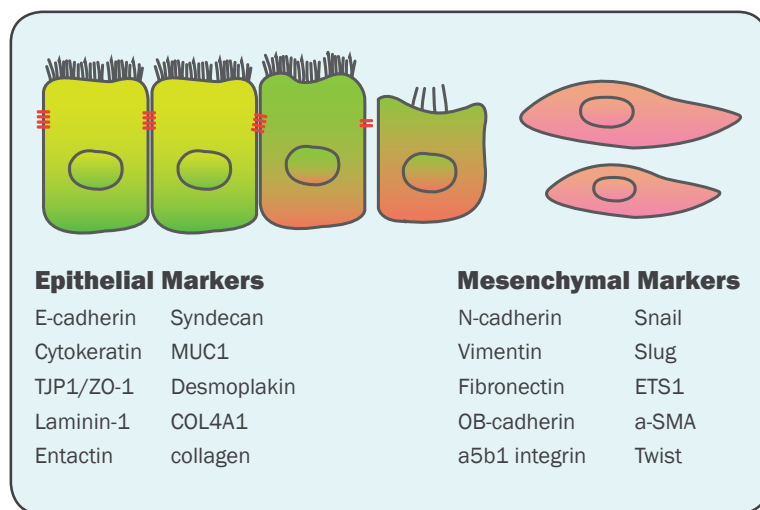


ANTIBODIES FOR EPITHELIAL-MESENCHYMAL TRANSITION (EMT)

Epithelial-Mesenchymal Transition (EMT) is the transdifferentiation of stationary epithelial cells into motile mesenchymal cells. Originally described by Elizabeth Hay in 1980s as 'epithelial to mesenchymal transformation', this process was renamed as epithelial-mesenchymal transition later on to emphasize its transient nature; mesenchymal-epithelial transition/MET being the reverse process. EMT is an integral biological process which involves in development, wound healing, stemness, and contributes to pathophysiology of fibrosis and cancer metastasis. During EMT, epithelial cells lose their junctions and apical-basal polarity, reorganize their cytoskeleton, undergo a change in the signalling molecules that define cell shape and reprogramme gene expression; this increases the motility of individual cells and enables the development of an invasive phenotype. At the molecular level, EMT is mediated by finely regulated key transcription factors which include SNAIL1 (Zinc finger protein SNAIL1), ZEB (zinc-finger E-box-binding) and bHLH factors (basic helix-loop-helix transcription factors).



Novus Biologicals offers extensively validated high quality antibodies for various epithelial and mesenchymal markers, and for critical players of EMT signaling.

pan Cytokeratin Antibody

NBP2-29429 (29 publications)

Species: Hu, Mu, Rt, Bv, Ca, Ch, Pm, Rb

Applications: WB, Flow, ICC/IF, IHC-Fr, IHC-P



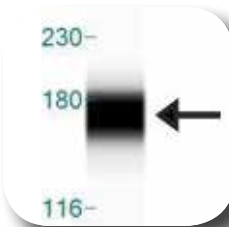
IHC-P analysis of formalin-fixed human colon carcinoma section using pan Cytokeratin antibody (clone AE1+AE3).

ZEB1 Antibody

NBP1-05987 (18 publications)

Species: Hu, Mu

Applications: SW, WB, GS, ICC/IF, IHC-P, IP



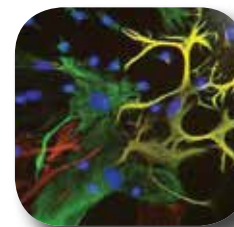
Simple Western analysis of 0.5 mg/ml Jurkat lysate on 12-230 kDa separation system using ZEB1 Antibody.

Vimentin Antibody

NB300-223 (12 publications)

Species: Hu, Mu, Rt

Applications: WB, ICC/IF, IHC-Fr, IHC-P



Confocal staining analysis of mixed neuron/glia cultures with NB300-223 (green) and GFAP antibody NB300-141 (red).

1,000+ Novus antibodies are Simple Western Certified

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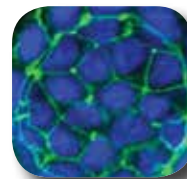
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Epithelial Phenotype Markers

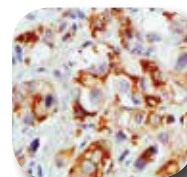
Target	Catalog#	Host/Clonality	Species	Applications
Claudin-1	NBP1-67515	Rb/Poly	Hu, Mu, Rt	WB, ELISA, ICC/IF, IHC-P
COL4A1	NB120-6586	Rb/Poly	Hu, Rt, Bv, Ma	WB, ELISA, IHC-P, IP
pan Cytokeratin	NBP2-29429	Mu/Mono	Hu, Mu, Rt, Bv, Ca, Ch, Pm, Rb	WB, Flow, ICC/IF, IHC-Fr, IHC-P
Cytokeratin 1	NB100-2756	Mu/Mono	Hu, Rt	WB, ICC/IF, IHC-Fr, IHC-P
Cytokeratin 18	NBP2-29461	Mu/Mono	Hu	SW, WB, ELISA, Flow, ICC/IF, IHC-Fr, IHC-P, IP
Desmocollin-1	NBP1-88099	Rb/Poly	Hu	SW, WB, IHC-P
Desmoglein 3	NBP1-78984	Mu/Mono	Hu	WB, ICC/IF, IHC-P, IP
Desmoplakin	NBP1-49879	Gt/Poly	Hu	WB, IHC-P, PEP-ELISA
E-Cadherin	NBP2-19051	Mu/Mono	Hu, Mu, Rt, Pm	WB, ELISA, Flow, ICC/IF, IHC-P
Laminin	NB300-144	Rb/Poly	Hu, Mu, Rt, Rb, Sh	WB, Func, ICC/IF, IHC-Fr, IHC-P
MUC-1	NB120-22711	Mu/Mono	Hu, Mu	ELISA, ICC/IF, IHC-Fr, IHC-P
Nidogen-1	NBP2-16341	Rb/Poly	Hu	WB, IHC-P
Occludin	NBP1-77037	Rb/Poly	Hu, Mu, Rt	WB, ELISA, ICC/IF, IHC-P
Syndecan-1	NB100-64980	Mu/Mono	Hu	WB, Flow, Func, ICC/IF, IHC-Fr, IHC-P
TJP1/ZO1	NBP1-85046	Rb/Poly	Hu	ICC/IF, IHC-P

E-Cadherin Antibody NBP2-19051 (2 publications)



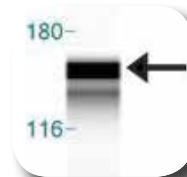
Confocal staining analysis of human colon cancer spheroids using E-Cadherin antibody (clone 7H12) with DyLight 488 labelled secondary and DAPI counterstaining.

MUC-1 Antibody NB120-22711 (11 publications)



IHC-P analysis of human breast cancer xenograft tissue using MUC-1 antibody with HRP-DAB detection and hematoxylin counterstaining.

N-Cadherin Antibody NBP1-48309 (20 Publications)

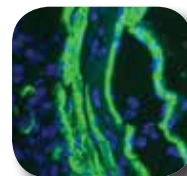


Simple Western analysis of 1.0 mg/ml of HeLa lysate with N-Cadherin antibody using 12-230 kDa separation system.

Mesenchymal Phenotype Markers

Target	Catalog#	Host/Clonality	Species	Applications
alpha SMA	NB600-531	Rb/Poly	Hu, Mu, Rt	WB, ICC/IF, IHC-Fr, IHC-P
alpha SMA	NB600-536	Mu/Mono	Hu	WB, ICC/IF, IHC-Fr, IHC-P
Fibronectin	NBP1-91258	Rb/Poly	Hu, Mu	SW, WB, ICC/IF, IHC-P
N Cadherin	NBP1-48309	Mu/Mono	Hu, Mu, Rt	SW, WB, ICC/IF, IHC-P, IP
N-Cadherin	NB200-592	Rb/Poly	Hu, Mu, Rt, Am, Av, Bv, Ca, Ch, Fi, Rb, Xp	WB, ICC/IF, IHC-Fr, IHC-P
OB-Cadherin	NBP1-00963	Rb/Poly	Hu, Mu, Rt	WB
S100A4	NBP2-36430	Mu/Mono	Hu	WB, ICC/IF, IHC-P
Slug	NBP2-27182	Rb/Poly	Hu, Ca, Eq	WB, IHC-P
Snail	NBP2-27184	Rb/Poly	Hu, Mu, Ca, Eq	WB, ICC/IF
Snail	NBP2-27293	Rb/Poly	Hu	SW, IHC-P
Snail (pS246)	NBP1-51411	Rb/Poly	Hu, Mu, Rt	WB, IHC-P
Vimentin	NB300-223	Ck/Poly	Hu, Mu, Rt	WB, ICC/IF, IHC-Fr, IHC-P
Vimentin	NBP1-92687	Mu/Mono	Hu, Mu, Rt, Ma	SW, WB, ICC/IF, IHC

Actin Alpha 2 Smooth Muscle Antibody NB600-536 (3 publications)



IHC analysis of a frozen section of human small intestine tissue using alpha-SMA antibody.

Snail Antibody NBP2-27184

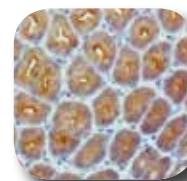


WB analysis of lysates from (1) murine D3 and (2) human MCF7 cell lines using Snail antibody.

Other Important Targets from EMT Signaling

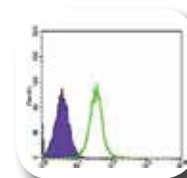
Target	Catalog#	Host/Clonality	Species	Applications
AKT1	NB100-56631	Rb/Poly	Hu	WB, ICC/IF
AKT1/2 (p er473)	NB100-56749	Mu/Mono	Hu, Mu	WB
beta-Catenin	NBP1-54467	Mu/Mono	Hu, Mu, Rt, Ch, Pm	SW, WB, ICC/IF, IHC-P, IP
beta-Catenin (pS33, pS37)	NB300-272	Rb/Poly	Hu	WB
COX-2	NB100-689	Rb/Poly	Hu, Mu, Rt	SW, WB, IHC-P
Dicer	NB200-591	Rb/Poly	Hu, Mu	WB, IHC-P
Ets-1	NB100-56620	Rb/Poly	Hu	WB
FBXL14	NBP2-33296	Rb/Poly	Hu	WB, ICC/IF, IHC-P
FoxC1	NBP2-24834	Rb/Poly	Hu, Pm	WB, IHC-P
FoxC2	NB100-1269	Gt/Poly	Hu, Mu	WB, ICC/IF, IHC-Fr, PEP-ELISA
GLI-1	NBP2-24662	Rb/Poly	Hu, Mu, Pm	WB, ICC/IF, IHC-P
Goosecoid	NBP2-37366	Mu/Mono	Hu	WB, ELISA, Flow, IHC-P
GSK-3 beta	NBP1-47470	Mu/Mono	Hu, Mu, Rt, Pm	SW, WB, ELISA, Flow, ICC/IF, IHC-P
GSK-3 beta (pS9)	NB100-81948	Rb/Poly	Hu, Mu, Rt	WB, ICC/IF, IHC-P
HDAC1	NB100-56340	Rb/Poly	Hu, Mu	SW, WB, IHC-P
HDAC2	NBP2-03980	Rb/Poly	Hu, Mu, Rt	WB, ICC/IF, IHC-P
HIF-1 alpha	NB100-131	Mu/Mono	Hu, Mu, Rt, Bv, Ca	SW, WB, ICC/IF, IHC-Fr, IHC-P, IP
ID2	NBP2-27194	Rb/Poly	Hu, Rt, Bv, Ch, Eq, Ha, Pm	WB, ICC/IF
ILK	NBP2-37448	Mu/Mono	Hu, Mu, Pm	WB, ELISA, Flow, IHC-P
ITGA5	NB100-78108	Mu/Mono	Hu	ELISA, Flow, IHC-Fr, IP
ITGB3	NB100-2680	Mu/Mono	Hu, Rt	Flow, ICC/IF, IHC-Fr, IP
KAP1	NB500-158	Rb/Poly	Hu, Mu	WB, ICC/IF, IHC-P, IP, PLA
KLF8	NBP2-27418	Rb/Poly	Hu, Pm	WB
LEF1	NB100-41374	Gt/Poly	Hu, Mu, Rt	WB, PEP-ELISA
MDM2	NB100-2736	Mu/Mono	Hu, Rt	WB, IHC-Fr, IHC-P, IP
MMP-2	NB200-193	Rb/Poly	Hu, Mu, Rt, Ch	WB, Flow, ICC/IF, IHC-Fr, IHC-P
MMP-2	NB200-114	Mu/Mono	Hu, Mu, Rt	WB, ELISA, ICC/IF, IHC-Fr, IHC-P, IP
MMP-3	NB100-91878	Rb/Poly	Hu, Mu, Rt	WB, IHC-P
MMP-7	NBP1-99123	Rb/Poly	Hu, Mu	IHC-P
MMP-9	NBP2-13173	Mu/Mono	Hu, Rt	WB, ELISA, IHC-P
Nanog	NBP2-24941	Rb/Poly	Hu, Mu, Gt, Pm	WB, ICC/IF
Notch-1	NB100-78486	Mu/Mono	Hu, Mu	WB, Flow, ICC/IF, IHC-P, IP
Notch-1	NBP1-78292	Rb/Poly	Hu, Mu	SW, WB, ICC/IF, IHC-P
p38	NB100-56665	Rb/Poly	Hu	WB, IHC-P
p38 (pTh180/Ty182]	NB500-138	Rb/Poly	Hu	WB, IHC-P
PALS1	NB300-952	Gt/Poly	Hu	WB, IHC-P, PEP-ELISA

beta-Catenin Antibody [NBP1-54467](#) (5 publications)



IHC analysis of mouse intestine section using beta-Catenin antibody with DAB detection and hematoxylin counterstaining.

GSK3 beta Antibody [NBP1-47470](#) (2 Publications)



Flow analysis of HeLa cells using GSK3 beta antibody (green) and a negative control (purple).

HIF-1 alpha Antibody ([ESEE122](#)) [NB100-131](#) (50 publications)



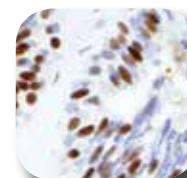
Confocal staining analysis of RAW264.7 cells using HIF-1 alpha antibody (clone ESEE122).

MMP-2 Antibody [NB200-193](#) (20 publications)



WB analysis of recombinant pro/active Human MMP-2 protein (left lane) and Rat's nerve lysate (right lane) using MMP-2 antibody.

KAP1 Antibody [NB500-158](#) (16 publications)

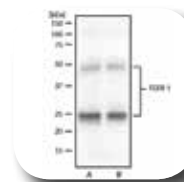


IHC-P analysis of a human prostate carcinoma tissue section using KAP1 antibody.

Other Important Targets from EMT Signaling Cont'd.

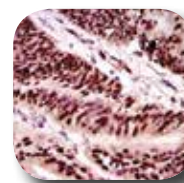
Target	Catalog#	Host/Clonality	Species	Applications
PATJ	NB100-1354	Gt/Poly	Hu	WB, IHC-P, PEP-ELISA
PKD-1	NB100-2383	Rb/Poly	Hu	WB, ICC/IF
Smad4	NBP2-24951	Rb/Poly	Hu, Mu, Rt, Pm	WB
SNAI3	NBP2-20433	Rb/Poly	Hu	WB, ICC/IF
SPARC	NBP1-80971	Rb/Poly	Hu	WB, IHC-Fr, IHC-P
STAT3	NBP2-22471	Mu/Mono	Hu, Mu, Rt, Pm	WB, ICC/IF, IHC-P, IP
SUMO2	NB100-56444	Rb/Poly	Hu, Mu	WB, IHC-P
TCF3 (pThr 355)	NB100-394	Rb/Poly	Hu	WB
TGF-beta 1	NBP2-22114	Mu/Mono	Hu	WB, ELISA, Flow, IHC-P
TIMP-1	NB100-74551	Mu/Mono	Hu, Mu	WB, ICC/IF, IHC-P
TIMP-2	NB100-92000	Rb/Poly	Hu, Mu, Rt	WB, ICC/IF, IHC-P
TRAF-6	NB100-56179	Rb/Poly	Hu, Mu, Rt, Bv	WB, IHC-P, IP
Twist-1	NBP2-37364	Mu/Mono	Hu, Mu	WB, ELISA, Flow, ICC/IF, IHC-P
Twist-2	H00117581-M01	Mu/Mono	Hu	WB, ELISA, IHC-P
Vitronectin	NBP1-42299	Mu/Mono	Hu	WB, ELISA, IHC-Fr
Wnt-5a	NBP2-24752	Rb/Poly	Hu, Mu, Rt, Bv, Pm	WB, IHC-P
YAP1	NB110-58358	Rb/Poly	Hu, Mu	SW, WB, ChIP, ICC/IF, IHC-P, IP
ZEB1	NBP1-05987	Rb/Poly	Hu, Mu	SW, WB, GS, ICC/IF, IHC-P, IP
ZEB1	NBP2-23484	Mu/Mono	Hu, Rt	WB, Flow, ICC/IF, IHC-P
ZEB2	NBP1-82991	Rb/Poly	Hu, Mu	ICC/IF, IHC-P

TGF-beta 1 Antibody NBP2-22114 (1 publication)



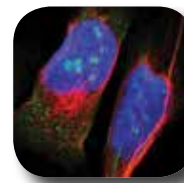
WB analysis of (A) human stomach and (B) small intestine tissue lysates with TGF beta 1 antibody.

Twist-1 Antibody NBP2-37364



IHC-P analysis of a human colon cancer tissue using TWIST1 antibody with HRP-DAB detection.

ZEB2 Antibody NBP1-82991 (3 publications)



Confocal staining analysis of human cell line U-2 OS using ZEB2 antibody.

Species Key: Am (Amphibian), Av (Avian), Bv (Bovine), Ca (Canine), Ch (Chicken), Eq (Equine), Fe (Feline), Fi (Fish), Gt (Goat), Ha (Hamster), Hu (Human), Ma (Mammals), Mu (Mouse), Pm (Non-human Primates), Rb (Rabbit), Rt (Rat), Sh (Sheep), Xp (Xenopus)

Applications Key: ChIP (Chromatin Immunoprecipitation), GS (Gel Super Shift Assay), ELISA (ELISA Capture and/or Detection), Flow (Flow Cytometry), Func (Functional), ICC/IF (Immunocytochemistry/Immunofluorescence), IHC-Fr (Immunohistochemistry-Frozen), IHC-P (Immunohistochemistry-Paraffin), IP (Immunoprecipitation), MiAr (Microarray), PEP-ELISA (Peptide ELISA), PLA (Proximity Ligation Assay), SW (Simple Western), WB (Western blot)

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