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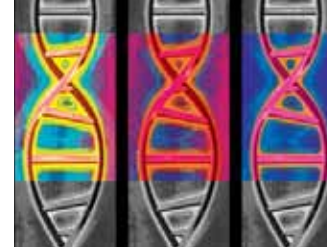
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EPIGENETICS

Chromatin Modifiers

Gene expression patterns in cells can be controlled epigenetically through the modification of DNA methylation, by covalently modifying the histone proteins or through the use of microRNAs and RNA interference pathways. Direct methylation of DNA occurs through the action of DNA Methyltransferases (DNMTs). DNMT1 is the most abundant DNMT and acts to methylate DNA at CpG dinucleotides. Histone acetylation is generally associated with increased transcriptional activation while methylation levels may either increase or decrease transcription. MicroRNA act as post-transcriptional regulators of gene expression which specifically bind the mRNA of target genes.

**Dnmt1 Antibody
NB100-264**

Immunocytochemical analysis in nuclei of HeLa cells using NB100-264.

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

**Dnmt3a Antibody
NB100-265**

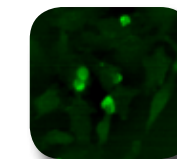
Western blot analysis using NB100-265 to detect overexpressed DNMT3A level in HCT-116 cells.

Species: Hu
Applications: IF, IP, WB

**Dnmt3b Antibody
NB100-266**

Western blot analysis using NB100-266 to detect overexpressed DNMT3B in HCT-116 cells.

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

**JARID2/Jumonji Antibody
NB100-2214**

Immunofluorescent staining of HeLa cells using NB100-2214.

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

**JARID1B Antibody
NB100-97821**

Immunoprecipitation of JARID1B using NB100-97821 on HeLa whole cell lysate.

Species: Hu, Mu
Applications: IP, WB

**SIRT1 Antibody
NBP1-49540**

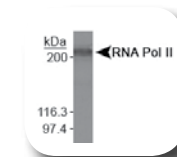
Immunohistochemical analysis of SIRT1 in human renal cell carcinoma using NBP1-49540.

Species: Hu
Applications: IHC, WB

Also Available: AICDA, Dnmt2, HDAC1, HDAC2, HDAC3, JMJD1A, JMJD2A, JMJD2B, JMJD2C, JMJD5, JMJD6, LSD1, PHF8, SAP30

MicroRNAs

microRNAs are short (~22 nucleotides) RNA molecules which have been shown to play a critical role in post-translational control of gene expression. Primary microRNAs (pri-miRNA) is transcribed by RNA pol II. These pri-miRNAs may contain up to six miRNA precursors. This double stranded RNA contains hairpin structures which are recognized by DGCR8 which with Drosha forms the microprocessor complex. DGCR8 aligns the pri-miRNA with Drosha's RNase III domain which cleaves the pri-miRNA into a pre-miRNA hairpin. The pre-miRNA is then exported from the nucleus using Exportin-5.

**RNA polymerase II (4H8) Antibody
NB200-598**

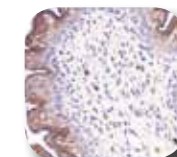
Western blot analysis on NIH/3T3 cell lysate using NB200-598.

Species: Hu, Mu, Ye
Applications: ChIP, ELISA, IF, IP, WB

**TARDBP Antibody
NB110-55376**

Western blot analysis of transfected cell lysate using NB110-55376.

Species: Ch, Hu, Mk, Mu, Xp, Ze
Applications: WB

**Lin28 Antibody
NBP1-49537**

Immunohistochemical analysis of LIN28 in E17.5 mouse embryo using NBP1-49537.

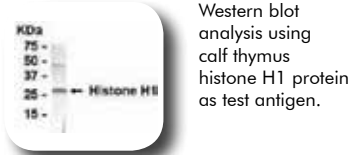
Species: Hu, Mu
Applications: ICC, IF, IHC, WB

Also Available: Ago2/eIF2C2, DGCR8, DGCR8 Knockout Mouse ESCs, Dicer, Drosha, Exportin-5, FMRP, LSM11, PACT, SMG1, ZNF473

Histones and Modified Histones

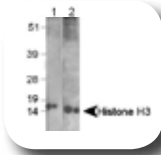
Histones are basic nuclear proteins that are responsible for the nucleosome structure of the chromosomal fiber in eukaryotes. Nucleosomes consist of approximately 146 bp of DNA wrapped around a histone octamer composed of pairs of each of the four core histones (H2A, H2B, H3, and H4). The chromatin fibre is further compacted through the interaction of a linker histone, H1, with the DNA between the nucleosomes to form higher order chromatin structures. Methylation of arginine residues within histone H3 has been linked to active transcription. However, the mechanism of demethylation of histones has remained elusive. Cuthbert and colleagues (Cuthbert et al. 2004. Cell, 118(5):545-53) recently described a process, termed deimination, that converts histone arginine to citrulline and antagonizes arginine methylation.

Histone H1 Antibody
NB300-373



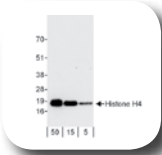
Species: Bv, Hu, Mu, Rt
Applications: IHC, WB

Histone H3 Antibody
NB500-267



Species: Hu, Mu
Applications: WB

Histone H4 Antibody
NB100-1724



Species: Hu
Applications: IP, WB

Also Available: H1 Oocyte specific, H1.1, H1.2, H1.3, H1.4, H1.5, H1T, H2a, H2A HB3, H2A.Z, H2ab, H2AE, H2B type 1B, H2B member S, H3.1, H3.3A, H3.3B, H3T, Histone Nucleosome Core

Featured Methylated Histones

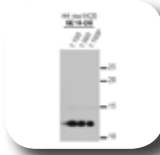
Histone H3 [trimethyl-Lys9] (6F12-H4) Antibody
NBP1-30141



Western blot analysis of Histone H3 K9-me3 [NBP1-30141] in HeLa histone lysates.

Species: Ce, Dr, Hu, Ma, Mu, Rt, Ye
Applications: ChIP, ELISA, ICC, IF, WB
Isotype: IgG1 Kappa
Clone: 6F12-H4

Histone H4 [methyl Lys20] (5E10-D8) Antibody
NBP1-30091



Western blot analysis of Histone H4 meK20 [NBP1-30091] in HeLa histone lysates.

Species: Ce, Dr, Hu, Ma, Mu, Rt, Ye
Applications: ChIP, ELISA, ICC, WB
Isotype: IgG1 Kappa
Clone: 5E10-D8

In Development

Novus Biologicals' Product Development Team is currently working on the production of several new Histone modification-specific antibodies, which you can browse below. We are looking for collaborators to work with on antibody characterization in exchange for free antibody. Please contact collaborations@novusbio.com for more information.

H3.2 K-methylation

- K4
- K9
- K4/K9-acetyl
- K18
- K23
- K27
- K36

H3.2 Phosphorylation and Lysine Modifications

- pT6
- pS10 +/- pT11
- pS28 +/- K27Me2/3

H3.2 Arginine Methylation

- R2
- R2/K4

H4 Modifications

- R3
- K20
- K44

ChIP-Grade Antibodies

Chromatin Immunoprecipitation (ChIP) is an experimental method, similar to immunoprecipitation, that studies protein-DNA interactions. Chromatin immunoprecipitation (ChIP) is a powerful tool for identifying the specific binding regions of the genome for a particular protein of interest. Browse the ChIP-grade antibodies that Novus Biologicals provides below and find more at www.novusbio.com.

Catalog #	Product	Host	Type	Applications	Species
NB600-281	ASH2L Antibody	Rabbit	Polyclonal	ChIP, IP, WB	Hu
NB100-129	BMAL1 Antibody	Rabbit	Polyclonal	ChIP, WB	Hu
NB600-1392	CENPA Antibody (38795)	Mouse	Monoclonal	ChIP, ICC, IHC, WB	Hu
NB100-60411	CHD1 Antibody	Rabbit	Polyclonal	ChIP, IP, WB	Hu
NB400-135	CHREBP Antibody	Rabbit	Polyclonal	ChIP, IF, IHC-P, WB	Hu, Mu, Rt
NB100-126	CLOCK Antibody	Rabbit	Polyclonal	ChIP, WB	Hu, Mu
NB600-267	c-Maf Antibody	Rabbit	Polyclonal	ChIP, GS, IHC-Fr, IHC-P, WB	Mu
NB200-108	c-Myc Antibody (9E11)	Mouse	Monoclonal	ChIP, ELISA, IHC-Fr, IHC-P, IP, WB	Ba, Ch, Hu, Mu
NB100-744	Cytosine [5-methyl] Antibody	Sheep	Polyclonal	ChIP, IHC-Fr, IP, WB	All
NB100-1924	DAF-3 Antibody	Rabbit	Polyclonal	ChIP, IP, WB	Ce
NB500-120	Dimethyl Arginine Antibody (7E6)	Mouse	Monoclonal	ChIP, ELISA, IF, IHC, IP, WB	All, Ma
NB100-256	DMAP1 Antibody	Goat	Polyclonal	ChIP, WB	Hu
NB100-56519	Dnmt1 Antibody (60B1220.1)	Mouse	Monoclonal	ChIP, IHC, IHC-P, IP, WB	Hu, Mu, Ze
NB100-56514	Dnmt3b Antibody (52A1018)	Mouse	Monoclonal	ChIP, ICC, IF, IP, WB	Hu, Mu
NB300-516	Dnmt3b Antibody	Rabbit	Polyclonal	ChIP, WB	Hu, Mu
NB600-537	FLI1 Antibody	Rabbit	Polyclonal	ChIP, IHC, IHC-P, IP, WB	Hu, Mu, Rt
NB600-363	HA Epitope Tag Antibody	Rabbit	Polyclonal	ChIP, ELISA, ICC, IF, IP, WB	NA
NB500-124	HDAC1 Antibody	Rabbit	Polyclonal	ChIP, ICC, IF, IHC, IP, WB	Hu, Mu, Rt
NB500-126	HDAC3 Antibody	Rabbit	Polyclonal	ChIP, IHC-P, IP, WB	Hu, Mu, Rt
NB100-134	HIF-1 alpha Antibody	Rabbit	Polyclonal	ChIP, IHC, IHC-P, WB	Hu, Mk, Mu, Rt
NB100-105	HIF-1 alpha Antibody (H1alpha67)	Mouse	Monoclonal	ChIP, ICC, IF, IHC-Fr, IHC-P, IP, WB	Bv, Ft, Hu, Mk, Mu, Po, Rb, Rt, Sh
NB100-110	HIF-1 beta Antibody	Rabbit	Polyclonal	ChIP, IHC, IHC-P, IP, WB	Bv, Ft, Hu, Mu, Rt, Sh
NB100-122	HIF-2 alpha Antibody	Rabbit	Polyclonal	ChIP, ICC, IF, IHC-P, IP, WB	Fi, Hu, Mu, Rt
NB120-12181	Histone H3 [Ac-Lys9/pSer10] Antibody	Rabbit	Polyclonal	ChIP, IF, WB	Hu
NBP1-30141	Histone H3 [trimethyl-Lys9] Antibody (6F12-H4)	Mouse	Monoclonal	ChIP, ELISA, ICC, IF, WB	Ce, Dr, Hu, Ma, Mu, Rt, Ye
NBP1-30091	Histone H4 [methyl Lys20] Antibody (5E10-D8)	Mouse	Monoclonal	ChIP, ELISA, ICC, IF, WB	Ce, Dr, Hu, Ma, Mu, Rt, Ye
NB600-256	KMT2A / MLL Antibody	Rabbit	Polyclonal	ChIP, IP, WB	Hu
NB400-137	MafA Antibody	Rabbit	Polyclonal	ChIP, GS, IHC-Fr, IHC-P, WB	Mu
NB600-266	MafB Antibody	Rabbit	Polyclonal	ChIP, IHC-Fr, IHC-P, WB	Mu
NB600-1101	MeCP2 Antibody	Rabbit	Polyclonal	ChIP, IF, IP, WB	Hu, Mu, Rt
NB100-215	Menin Antibody	Rabbit	Polyclonal	ChIP, ICC, IHC-P, IP, WB	Hu, Mu
NB600-254	MLL4 Antibody	Rabbit	Polyclonal	ChIP, IP, WB	Hu
NB500-122	Monomethyl Arginine [monomethyl] Antibody (5D1)	Mouse	Monoclonal	ChIP, IHC, WB	All
NB500-117	N Epsilon (Gamma Glutamyl) Lys Antibody (81D1C2)	Mouse	Monoclonal	ChIP, IHC, WB	All
NB120-2781	NCOR2 Antibody (1542)	Mouse	Monoclonal	ChIP, IHC-Fr, WB	Hu
NB100-798	ORC4L Antibody	Goat	Polyclonal	ChIP, ELISA, WB	Hu, Mu
NBP1-00625	ORC6L Antibody (3A4)	Rat	Monoclonal	ChIP, IP, WB	Hu
NB120-1101	p53 (BP53-12) Antibody	Mouse	Monoclonal	ChIP, ELISA, IHC-Fr, IHC-P, WB	Hu
NB100-345	PSMC5 Antibody (25D5)	Mouse	Monoclonal	ChIP, WB	Hu
NB600-252	RbBP5 Antibody	Rabbit	Polyclonal	ChIP, ICC, IP, WB	Hu, Mu
NB200-598	RNA polymerase II Antibody (4H8)	Mouse	Monoclonal	ChIP, ELISA, IF, IP, WB	Hu, Mu, Ye
NB100-558	SETD1A Antibody	Rabbit	Polyclonal	ChIP, IP, WB	Hu
NB600-1258	Smad3 Antibody	Rabbit	Polyclonal	ChIP, IHC-P, WB	Hu, Mu, Rt
NB110-57130	TRF2 Antibody	Rabbit	Polyclonal	ChIP, ICC, IF, WB	Hu

CHREBP Antibody
NB400-135



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

Immuno-fluorescent analysis of a human hepatocyte using NB400-135.

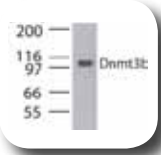
Dnmt1 (60B1220.1) Antibody
NB100-56519



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

Immuno-histochemical analysis of kidney tissue sections using NB100-56519.

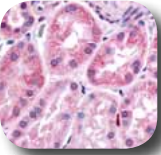
Dnmt3b (52A1018) Antibody
NB100-56514



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

Western blot analysis of Dnmt3b on NIH/3T3 cell lysate using NB100-56514.

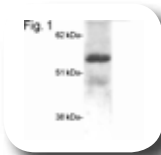
HIF-1 alpha Antibody
NB100-134



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

Immuno-histochemical analysis of human kidney using NB100-134.

MeCP2 Antibody
NB600-1101



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

Western blot analysis of MeCP2 on HeLa cell extract using NB600-1101.