

MONOCLONAL ANTIBODY

For research use only. Not for clinical diagnosis.

Catalog No. MCA-MABI0006-100-EX

Anti-monomethyl Histone H3 (Lys9)

Product type	Primary antibodies
Host	Mouse
Source	Culture supernatant of serum free medium
Form	Liquid PBS + 0.05% sodium azide
Volume	100 µL
Concentration	1 mg/ml
Specificity	
Antigen	19 amino acid residues from the N-terminus of human Histone H3.1
Clone	MABI0306 (CMA306)
Isotype	IgG2a

Application notes Immunoblot, Immunostaining, Immunoprecipitation

Recommended use

Recommended dilutions

Immunoblot: 0.5-1 µg/ml

Immunostaining: 0.5-1 µg/ml

*Immunoprecipitation: 1-5 µg/5 µl Sepharose

*Attention: Mouse IgG has weak combination with protein A and protein G. Please use the beads which connect anti-mouse IgG antibodies such as anti-mouse IgG sepharose for immunoprecipitation.

Optimal dilutions/concentrations should be determined by the end user.

Staining Pattern

Cross reactivity

Storage

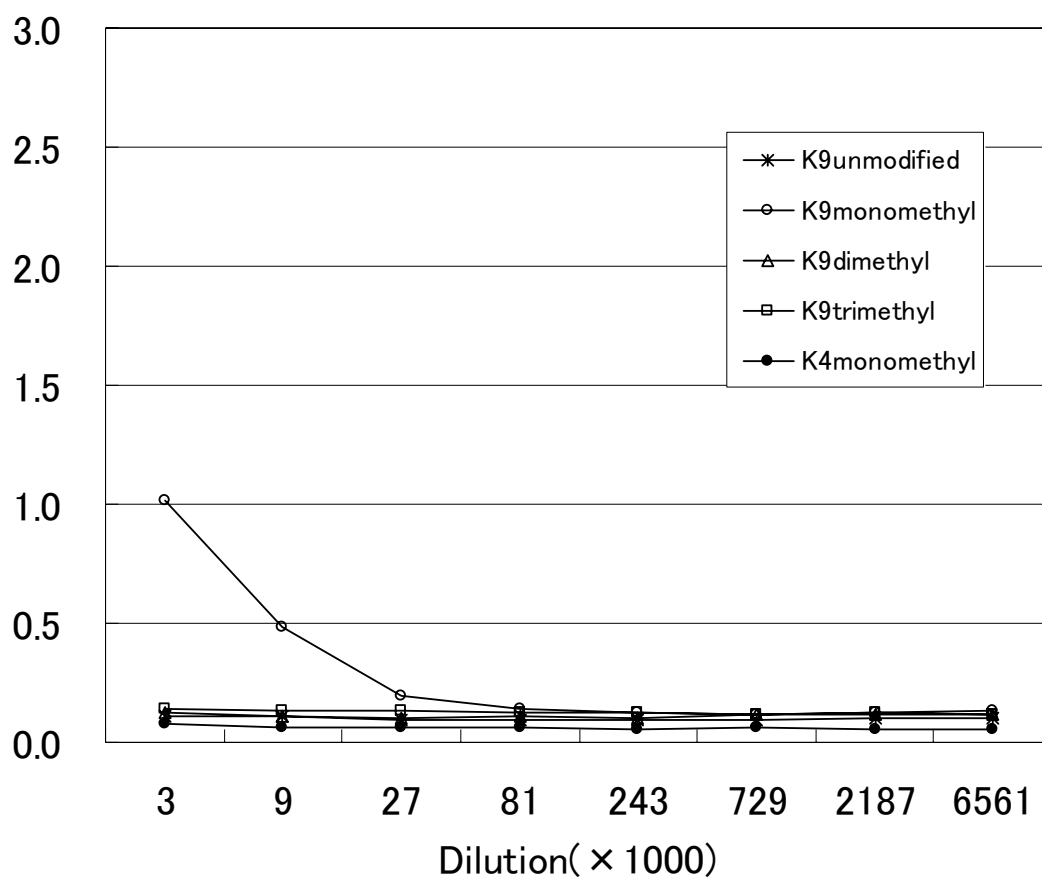
Store below -20°C.

References

- 1) Kimura H, Hayashi-Takanaka Y, Goto Y, Takizawa N, Nozaki N. The organization of histone H3 modifications as revealed by a panel of specific monoclonal antibodies. Cell Struct Funct. 2008;33(1):61-73.



MABI 0306



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New

World's First !!!

Histone Variant Monoclonal Antibodies

Anti Histone H3.1/H3.2 [Clone: 6G3C7]

Anti Histone H3.1/H3.2 [Clone: 1D4F2]

Anti Histone H3.3 [Clone: 6C4A3]

Anti Histone H3.3 [Clone: 1E4A3]

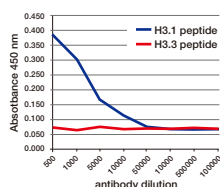
Nucleosomes are composed of four different histone proteins designated H2A, H2B, H3, and H4. In humans, five variants of histone H3 are reported: H3.1, H3.2, H3.3, H3t, and CENP-A. The two major Histone H3 variants, H3.1 and H3.3, are the main variants displaying distinct genomic localization patterns in eukaryotes. Deposition of Histone H3.1 is associated with DNA synthesis during DNA replication and possibly DNA repair, while Histone H3.3 is incorporated independently of DNA synthesis and is the predominant form of H3 found in non-dividing cells. Hence, these new Histone H3 variant monoclonal antibodies

offer great utility for dissecting the functional significance of these H3 variants and the molecular mechanisms associated with their deposition.

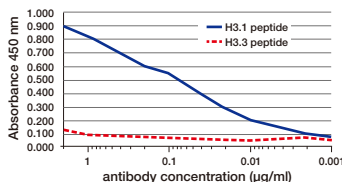
Recently, it was shown that a genomic gene cluster regulating skeletal myogenesis is marked by H3.3 protein prior to cellular muscle formation and that H3.3 marking of this region enables myogenic gene activation (Ref. 2). These results suggest that monitoring H3.3 marking at specific loci may be useful in the prediction of cell fate. These H3.3 monoclonal antibodies are expected to be useful probes in the field of regenerative medicine.

Antibody specificity by competition peptide ELISA

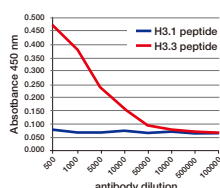
Histone H3.1/H3.2 MAb (6G3C7)



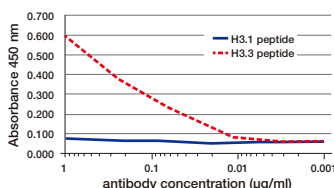
Histone H3.1/H3.2 MAb (1D4F2)



Histone H3.3 MAb (6C4A3)



Histone H3.3 MAb (1E4A3)

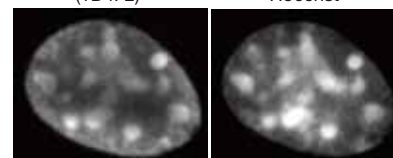


H3.1 peptide 79 KTDLRFQSSAVMALQEASEA 97
H3.3 peptide 79 KTDLRFQSAALQEASEA 97

H3.1 peptide 21 ATKAARKSAPATGGVKKPH 39
H3.3 peptide 21 ATKAARKSAPSTGGVKKPH 39

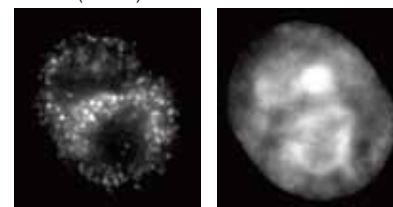
Fluorescence immunostaining

Histone H3.1/H3.2 MAb (1D4F2)



NIH3T3

Histone H3.3 MAb (1E4A3)



HeLa

Experimental example

These H3 variant antibodies were essential tools in a first of kind study showing that differentiation specific genes are marked for lineage specific expression by the deposition of Histone H3.3 at the onset of differentiation signaling (Ref. 2).

Reference

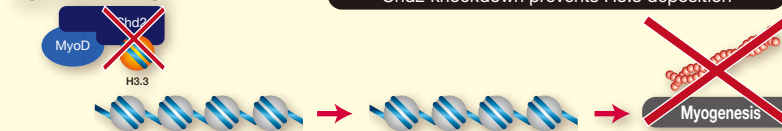
- 1) Hake and Allis, (2006) *PNAS*, 103, 6428-6435.
- 2) Harada et. al., (2012) *EMBO J.* 36, 2994-3007.

H3.3 gene marking in skeletal muscle differentiation

MARKING



Non-MARKING



Description	Clone	Isotype	Epitope	Application	Cat. No.	Quantity
Anti Histone H3.1/H3.2	6G3C7	Rat-IgG1, λ	H3.1/H3.2 (79-94)	IP/ WB	CAC-CE-039A	100 μ L (100 μ g)
Anti Histone H3.1/H3.2	1D4F2	Mouse-IgG2b, λ	H3.1/H3.2 (21-39)	ChIP/ IP/ WB/ IC	CAC-CE-039B	50 μ L (50 μ g)
Anti Histone H3.3	6C4A3	Rat-IgG2a, κ	H3.3 (79-97)	IP/ WB	CAC-CE-040A	100 μ L (100 μ g)
Anti Histone H3.3	1E4A3	Rat-IgG2a, λ	H3.3 (21-39)	ChIP/ IP/ WB/ IC	CAC-CE-040B	50 μ L (50 μ g)

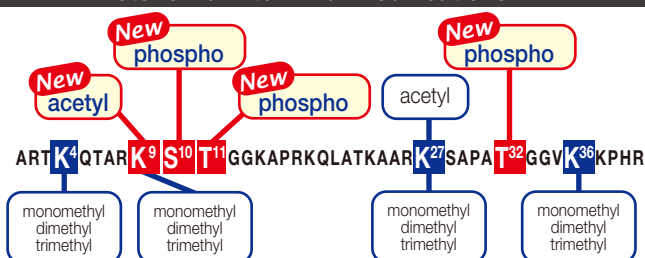


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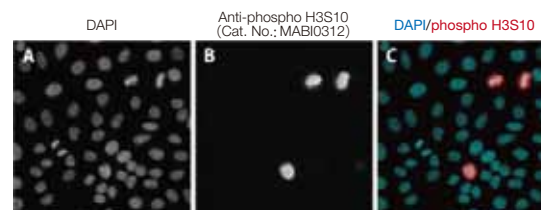
Monoclonal Antibodies to Histone Modifications

Histones are the main protein components of chromatin. To facilitate nuclear packaging and control of gene expression, DNA in chromatin is wound around nucleosome particles composed primarily of the Histones H2A, H2B, H3, and H4. Histone N-terminal regions (histone tails) protrude from the nucleosome core and are subject to a variety of reversible, regulated modifications (including acetylation, phosphorylation, and methylation) influencing transcription and chromatin structure. How such modifications are regulated and how these modifications effect gene expression continues to be an area of intense interest and research. In such studies, chromatin immunoprecipitation (ChIP) is perhaps the most widely used experimental procedure. Due to the inherent variability and limited supply of polyclonal antibodies, well characterized monoclonal antibodies are preferred reagents for ChIP. The versatile set of anti-histone monoclonal antibodies offered here are therefore highly valuable reagents to your lab's epigenetic toolbox.

Histone H3 N-terminal modifications



Histone H3 phospho Ser10 immunostaining



Description	Host	Residue	Modification	Clone	Application	Cat. No.	Quantity
Anti Histone H3	Mouse	-	unmodified	MAB10301	ChIP/ WB/ IC	MCA-MAB10001-100-EX	100 µL (100 µg)
Anti Monomethyl Histone H3 (Lys4)	Mouse	K4 (Lysine 4)	monomethyl	MAB10302	ChIP/ WB/ IC	MCA-MAB10002-100-EX	100 µL (100 µg)
Anti Dimethyl Histone H3 (Lys4)	Mouse		dimethyl	MAB10303	ChIP/ WB/ IC	MCA-MAB10003-100-EX	100 µL (100 µg)
Anti Trimethyl Histone H3 (Lys4)	Mouse		trimethyl	MAB10304	ChIP/ WB/ IC	MCA-MAB10004-100-EX	100 µL (100 µg)
Anti Histone H3 K9Ac New	Rat	K9 (Lysine 9)	acetyl	2G1F9	ChIP/ WB/ IC/ IHC	CAC-CE-037A	100 µL (100 µg)
Anti Acethyl Histone H3 (Lys9)	Mouse		acetyl	MAB10305	ChIP/ WB/ IC	MCA-MAB10005-100-EX	100 µL (100 µg)
Anti Monomethyl Histone H3 (Lys9)	Mouse		monomethyl	MAB10306	ChIP/ WB/ IC	MCA-MAB10006-100-EX	100 µL (100 µg)
Anti Dimethyl Histone H3 (Lys9)	Mouse		dimethyl	MAB10307	ChIP/ WB/ IC	MCA-MAB10007-100-EX	100 µL (100 µg)
Anti Trimethyl Histone H3 (Lys9)	Mouse		trimethyl	MAB10308	ChIP/ WB/ IC	MCA-MAB10008-100-EX	100 µL (100 µg)
Anti Acetyl Histone H3 (Lys9/27)	Mouse	K9/27 (Lysine 9/27)	acetyl	MAB10310	ChIP/ WB/ IC	MCA-MAB10010-100-EX	100 µL (100 µg)
Anti Acetyl Histone H3 (Lys27)	Mouse	K27 (Lysine 27)	acetyl	MAB10309	ChIP/ WB/ IC	MCA-MAB10009-100-EX	100 µL (100 µg)
Anti Monomethyl Histone H3 (Lys27)	Mouse		monomethyl	MAB10321	ChIP/ WB/ IC	MCA-MAB10321-100-EX	100 µL (100 µg)
Anti Dimethyl Histone H3 (Lys27) coming soon!	Mouse		dimethyl	MAB10322	ChIP/ WB/ IC	MCA-MAB10322-100-EX	100 µL (100 µg)
Anti Trimethyl Histone H3 (Lys27)	Mouse		trimethyl	MAB10323	ChIP/ WB/ IC	MCA-MAB10323-100-EX	100 µL (100 µg)
Anti Monomethyl Histone H3 (Lys36)	Mouse	K36 (Lysine 36)	monomethyl	MAB10331	ChIP/ WB/ IC	MCA-MAB10331-100-EX	100 µL (100 µg)
Anti Dimethyl Histone H3 (Lys36)	Mouse		dimethyl	MAB10332	ChIP/ WB/ IC	MCA-MAB10332-100-EX	100 µL (100 µg)
Anti Trimethyl Histone H3 (Lys36)	Mouse		trimethyl	MAB10333	ChIP/ WB/ IC	MCA-MAB10333-100-EX	100 µL (100 µg)
Anti Histone H3 S10ph New	Rat	S10 (Serine 10)	phospho	6G8B7	WB/ IC	CAC-CE-034A	100 µL (100 µg)
Anti phospho Histone H3 (Ser10)	Mouse		phospho	MAB10312	ChIP/ WB/ IC	MCA-MAB10012-100-EX	100 µL (100 µg)
Anti Histone H3 T11ph New	Rat	T11 (Threonine 11)	phospho	6G12C5	WB/ IC	CAC-CE-035A	100 µL (100 µg)
Anti Histone H3 T32ph New	Rat	T32 (Threonine 32)	phospho	6C7G12	WB/ IC	CAC-CE-036A	100 µL (100 µg)
Anti phospho Histone H2B (Ser14)	Mouse	S14 (Serine 14)	phospho	MAB10251	ChIP/ WB/ IC	MCA-MAB10251-100-EX	100 µL (100 µg)

Reference

- 1) Strahl and Allis, (2000) *Nature* 403, 41-45.
- 2) Shimada et. al., (2008) *Cell* 132, 221-232.
- 3) Kimura H, et. al., (2008) *Cell Struct Funct.*, 33, 61
- 4) Ohhata T, et. al., (2008) *Development.*, 135, 227
- 5) Luco RF, et. al., (2010) *Science.*, 327, 996 (2010)
- 6) Rechtsteiner A, et. al., (2010) *PLoS Genet.*, 6, e1001091
- 7) Furuhashi H, et. al., (2010) *Epigenetics Chromatin.*, 3, 15
- 8) Matsui T, et. al., (2010) *Nature.*, 464, 927

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New

世界初! コスモ・バイオから新発売!

ヒストンH3 バリエーションモノクローナル抗体

Anti Histone H3.1/H3.2 [Clone: 6G3C7]

Anti Histone H3.1/H3.2 [Clone: 1D4F2]

Anti Histone H3.3 [Clone: 6C4A3]

Anti Histone H3.3 [Clone: 1E4A3]

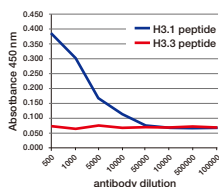
ヌクレオソームは H2A、H2B、H3 および H4 の 4 種のヒストンタンパク質で構成されています。また、ヒストンにはバリエーションが存在し、特にヒト由来のヒストン H3 には、H3.1、H3.2、H3.3、H3t、および CENP-A の 5 種類のバリエーションが報告されています。主なバリエーションである H3.1、および H3.3 は真核生物においては異なるゲノム局在パターンを示しています。Histone H3.1 は転写因子および転写補因子、DNA 複製因子、DNA 修復タンパク質への関与が、ヒストン H3.3 は DNA 合成に依存しないデポジションパスウェイにおいて、交換バリエーションとしての

機能が知られております。新製品ヒストン H3.1 抗体、ヒストン H3.3 抗体は、その機能解析に有用です。

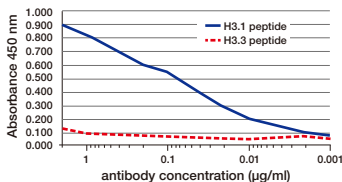
また、最近、ゲノム上の骨格筋形成にかかわる遺伝子群は、細胞が筋肉形成される以前に H3.3 タンパク質で予めマーキングされ、このマーキングが形成されることで、細胞が筋肉組織を形成する能力を獲得することが、H3.3 抗体の使用によって明らかになりました (参考文献 2)。再生医療研究にも有用な本抗体を是非お試しください。

抗体の特異性を ELISA 法で確認

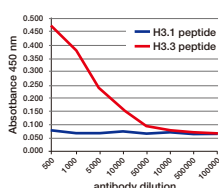
Histone H3.1/H3.2 MAb (6G3C7)



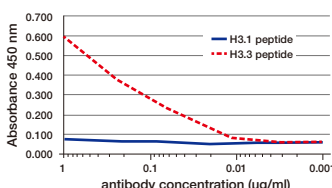
Histone H3.1/H3.2 MAb (1D4F2)



Histone H3.3 MAb (6C4A3)



Histone H3.3 MAb (1E4A3)

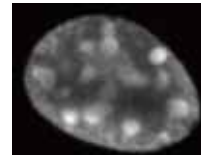


H3.1 peptide 79 KTDLRFSQSAVMALQEASEA 97
H3.3 peptide 79 KTDLRFSQSAIGALQEASEA 97

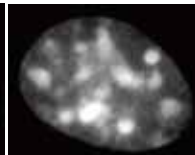
H3.1 peptide 21 ATKAAARKSAPATGGVKKPH 39
H3.3 peptide 21 ATKAAARKSAPSTGGVKKPH 39

細胞の蛍光染色

Histone H3.1/H3.2 MAb (1D4F2)

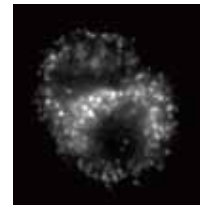


Hoechst

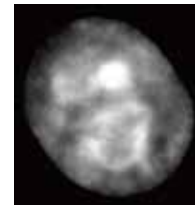


NIH3T3 細胞

Histone H3.3 MAb (1E4A3)



Hoechst



HeLa 細胞

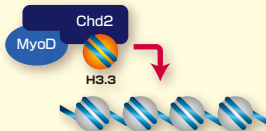
H3.3 抗体での実験例

ES 細胞、幹細胞など特定の組織に変化する能力 (分化能) を持った細胞は、あらかじめ H3.3 と呼ばれる特殊なヒストン (ヒストンバリエーション) により、必要な遺伝子がマーキングされることが明らかになりました。骨格筋形成時に、転写因子 MyoD が骨格筋遺伝子に選択的に結合し、MyoD に結合したシャペロンである Chd2 タンパク質が H3.3 をゲノムに組み込むことでマーキングしていることが発見されました。一方で、マーキング機構を失った細胞では、骨格筋の形成がなされなかったことから、骨格筋形成を事前に予測できる細胞内のメカニズムを明らかにした世界初の知見となりました (参考文献 2)。

九州大学大学院医学研究院 准教授 大川 恭行 先生

遺伝子「マーキング」により骨格筋となる

マーキングがある場合



Chd2-MyoD は遺伝子を H3.3 でマーキングする



骨格筋形成

マーキングがない場合



骨格筋形成なし

参考文献 1) Hake and Allis, (2006) *PNAS*, 103, 6428-6435.
2) Harada et al., (2012) *EMBO J*, 31, 2994-3007.

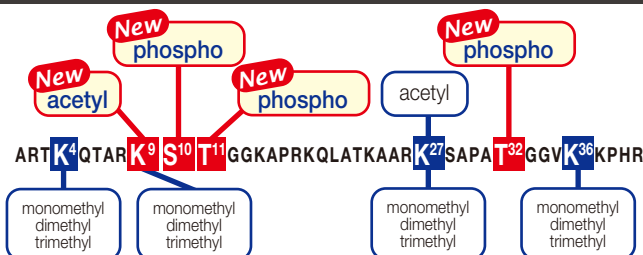
コスモ・バイオ株式会社 メーカー略号: CAC

品名	クローン	アイソタイプ	エピトープ	適用	品番	包装	希望販売価格
Anti Histone H3.1/H3.2	6G3C7	Rat-IgG1, λ	H3.1/H3.2 (79-94)	WB	CE-039A	100 μ L (100 μ g)	¥ 58,000
Anti Histone H3.1/H3.2	1D4F2	Mouse-IgG2b, λ	H3.1/H3.2 (21-39)	ChIP/ WB/ IC	CE-039B	50 μ L (50 μ g)	¥ 58,000
Anti Histone H3.3	6C4A3	Rat-IgG2a, κ	H3.3 (79-97)	WB	CE-040A	100 μ L (100 μ g)	¥ 58,000
Anti Histone H3.3	1E4A3	Rat-IgG2a, λ	H3.3 (21-39)	ChIP/ WB/ IC	CE-040B	50 μ L (50 μ g)	¥ 58,000

売れています

ChIP、免疫染色、WB グレード 修飾ヒストン H3/H2B モノクローナル抗体

Histone H3 N-terminal modifications



ヌクレオソームのヒストンタンパク質（H2A, H2B, H3, H4）は、クロマチンの主要な構成要素になっています。ヒストンの N 末端はヒストンテールとよばれヌクレオソームコアから少し離れて存在しています。この N 末端の部分で様々な修飾を受け細胞のシグナル刺激に応答し、アセチル化、リン酸化、メチル化など様々な修飾を受け遺伝子発現に影響を与えます。エピジェネティクス研究での ChIP アッセイに不可欠な修飾ヒストン抗体を、是非コスモラインアップからご活用ください。

M で始まる品番：株式会社モノクローナル抗体研究所
C で始まる品番：コスモ・バイオ株式会社

メーカー略号：MCA
メーカー略号：CAC

品名	免疫動物	残基	修飾	クローン	適用	品番	包装	希望販売価格
Anti Histone H3	Mouse	-	unmodified	MAB10301	ChIP/ WB/ IC	MAB10001-20	20 µL (20 µg)	¥ 18,000
						MAB10001-100	100 µL (100 µg)	¥ 58,000
Anti Monomethyl Histone H3 (Lys4)	Mouse	K4 (Lysine 4)	monomethyl	MAB10302	ChIP/ WB/ IC	MAB10002-20	20 µL (20 µg)	¥ 18,000
						MAB10002-100	100 µL (100 µg)	¥ 58,000
Anti Dimethyl Histone H3 (Lys4)	Mouse		dimethyl	MAB10303	ChIP/ WB/ IC	MAB10003-20	20 µL (20 µg)	¥ 18,000
						MAB10003-100	100 µL (100 µg)	¥ 58,000
Anti Trimethyl Histone H3 (Lys4)	Mouse		trimethyl	MAB10304	ChIP/ WB/ IC	MAB10004-20	20 µL (20 µg)	¥ 18,000
						MAB10004-100	100 µL (100 µg)	¥ 58,000
Anti Histone H3 K9Ac New	Rat	K9 (Lysine 9)	acetyl	2G1F9	ChIP/ WB/ IC/ IHC	CE-037A	100 µL (100 µg)	¥ 58,000
Anti Acethyl Histone H3(Lys9)	Mouse		acetyl	MAB10305	ChIP/ WB/ IC	MAB10005-20	20 µL (20 µg)	¥ 18,000
						MAB10005-100	100 µL (100 µg)	¥ 58,000
Anti Monomethyl Histone H3 (Lys9)	Mouse		monomethyl	MAB10306	ChIP/ WB/ IC	MAB10006-20	20 µL (20 µg)	¥ 18,000
						MAB10006-100	100 µL (100 µg)	¥ 58,000
Anti Dimethyl Histone H3 (Lys9)	Mouse		dimethyl	MAB10307	ChIP/ WB/ IC	MAB10007-20	20 µL (20 µg)	¥ 18,000
						MAB10007-100	100 µL (100 µg)	¥ 58,000
Anti Trimethyl Histone H3 (Lys9)	Mouse		trimethyl	MAB10308	ChIP/ WB/ IC	MAB10008-20	20 µL (20 µg)	¥ 18,000
						MAB10008-100	100 µL (100 µg)	¥ 58,000
Anti Acetyl Histone H3 (Lys9/27)	Mouse	K9/27 (Lysine 9/27)	acetyl	MAB10310	ChIP/ WB/ IC	MAB10010-20	20 µL (20 µg)	¥ 18,000
						MAB10010-100	100 µL (100 µg)	¥ 58,000
Anti Acetyl Histone H3 (Lys27)	Mouse	K27 (Lysine 27)	acetyl	MAB10309	ChIP/ WB/ IC	MAB10009-20	20 µL (20 µg)	¥ 18,000
						MAB10009-100	100 µL (100 µg)	¥ 58,000
Anti Monomethyl Histone H3 (Lys27)	Mouse		monomethyl	MAB10321	ChIP/ WB/ IC	MAB10321-20	20 µL (20 µg)	¥ 18,000
						MAB10321-100	100 µL (100 µg)	¥ 58,000
Anti Dimethyl Histone H3 (Lys27) 近日発売	Mouse		dimethyl	MAB10322	ChIP/ WB/ IC	MAB10322-20	20 µL (20 µg)	¥ 18,000
						MAB10322-100	100 µL (100 µg)	¥ 58,000
Anti Trimethyl Histone H3 (Lys27)	Mouse		trimethyl	MAB10323	ChIP/ WB/ IC	MAB10323-20	20 µL (20 µg)	¥ 18,000
						MAB10323-100	100 µL (100 µg)	¥ 58,000
Anti Monomethyl Histone H3 (Lys36)	Mouse	K36 (Lysine 36)	monomethyl	MAB10331	ChIP/ WB/ IC	MAB10331-20	20 µL (20 µg)	¥ 18,000
						MAB10331-100	100 µL (100 µg)	¥ 58,000
Anti Dimethyl Histone H3 (Lys36)	Mouse		dimethyl	MAB10332	ChIP/ WB/ IC	MAB10332-20	20 µL (20 µg)	¥ 18,000
						MAB10332-100	100 µL (100 µg)	¥ 58,000
Anti Trimethyl Histone H3 (Lys36)	Mouse		trimethyl	MAB10333	ChIP/ WB/ IC	MAB10333-20	20 µL (20 µg)	¥ 18,000
						MAB10333-100	100 µL (100 µg)	¥ 58,000
Anti Histone H3 S10ph New	Rat	S10 (Serine 10)	phospho	6G8B7	WB/ IC	CE-034A	100 µL (100 µg)	¥ 58,000
Anti phospho Histone H3 (Ser10)	Mouse		phospho	MAB10312	ChIP/ WB/ IC	MAB10012-20	20 µL (20 µg)	¥ 18,000
						MAB10012-100	100 µL (100 µg)	¥ 58,000
Anti Histone H3 T11ph New	Rat	T11 (Threonine 11)	phospho	6G12C5	WB/ IC	CE-035A	100 µL (100 µg)	¥ 58,000
Anti Histone H3 T32ph New	Rat	T32 (Threonine 32)	phospho	6C7G12	WB/ IC	CE-036A	100 µL (100 µg)	¥ 58,000
Anti phospho Histone H2B (Ser14)	Mouse	S14 (Serine 14)	phospho	MAB10251	ChIP/ WB/ IC	MAB10251-20	20 µL (20 µg)	¥ 18,000
						MAB10251-100	100 µL (100 µg)	¥ 58,000

お願い および 注意事項

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取扱店



人と科学のステキな未来へ

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