Revision 1

#12576 Store at -20C

Cleaved Histone H3 (Thr22) (D7J2K) Rabbit mAb

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB	H	Endogenous	15	Rabbit IgG	#P68431	8350

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

Cleaved Histone H3 (Thr22) (D7J2K) Rabbit mAb recognizes endogenous levels of histone H3 protein when cleaved at Thr22. This antibody shows a preference for histone H3 protein when cleaved at Thr22, but also recognizes full length histone H3.

Species predicted to react based on 100% sequence homology:

Mouse, Rat, Monkey, Xenopus, Bovine, Dog

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Thr22 of human histone H3 protein.

Background

Modulation of chromatin structure has a critical role in the control of various DNA directed activities such as transcription, DNA replication, and repair (1). The basic unit of chromatin, the nucleosome, consists of two turns of DNA wrapped around two copies each of four core histone proteins (H2A, H2B, H3, and H4) (2,3). Amino-terminal tails of histones undergo various post-translational modifications such as acetylation, methylation, phosphorylation, and ubiquitination in response to physiological and environmental stimuli. These modifications modulate the accessibility of chromatin to effector proteins as well as act as binding sites for specific histone modification recognizing effector proteins that regulate gene expression (1,4,5). Such alterations in chromatin modifications and architecture that accompany gene expression changes have been observed during embryonic stem cell differentiation (6). One of the ways in which chromatin modifications may be altered in stem cells involves regulated proteolysis of histone H3 by Cathepsin L. Cathepsin L cleaves the histone H3 amino-terminal tail predominantly at Thr22 in differentiating stem cells, leading to removal of histone modification marks which could then influence the expression patterns of developmentally regulated genes (7).

Background References

1. Smith, E. and Shilatifard, A. (2010) *Mol Cell* 40, 689-701.
2. Kornberg, R.D. (1974) *Science* 184, 868-71.
3. Kornberg, R.D. and Lorch, Y. (1999) *Cell* 98, 285-94.
4. Strahl, B.D. and Allis, C.D. (2000) *Nature* 403, 41-5.
5. Gardner, K.E. et al. (2011) *J Mol Biol* 409, 36-46.
6. Young, R.A. (2011) *Cell* 144, 940-54.
7. Duncan, E.M. et al. (2008) *Cell* 135, 284-94.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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Limited Uses