Revision 1

#7469 Store at -20C

Cleaved Histone H3 (Thr22) Antibody

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H X	Recombinant	15	Rabbit	#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 and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

Cleaved Histone H3 (Thr22) Antibody detects recombinant or enriched endogenous histone H3 protein when cleaved *in vitro* with Cathepsin L at Thr22. This antibody shows a strong preference for histone H3 protein when cleaved at Thr22, but also weakly recognizes full length histone H3.

Species predicted to react based on 100% sequence homology

Mouse, Rat, Monkey, Bovine, Dog

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Thr22 of human histone H3 protein. Antibodies are purified by protein A and peptide affinity chromatography.

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

W: Western Blotting

Cross-Reactivity Key

H: Human **X:** Xenopus

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