#12576 Store at -20°C

Cleaved Histone H3 (Thr22) (D7J2K) Rabbit mAb

☑ 100 µl
(10 western blots)

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Entrez-Gene ID #8350
Swiss-Prot Acc. #P68431

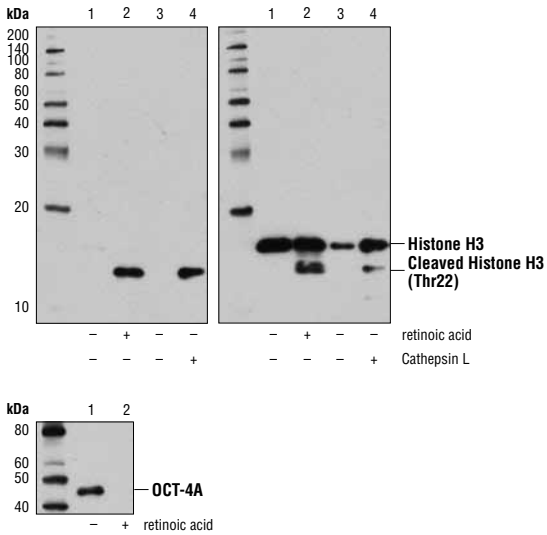
Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W Endogenous	H, (M, R, Mk, X, B, Dg)	15 kDa	Rabbit IgG**

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).

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

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



Western blot analysis of NTERA-2 cl. D1 cells (lanes 1 and 2), untreated (-) or treated with retinoic acid (+), and recombinant Xenopus histone H3 (lanes 3 and 4), undigested (-) or digested in vitro with Cathepsin L (+), using Cleaved Histone H3 (Thr22) (D7J2K) Rabbit mAb (top left), Histone H3 (D1H2) XP® Rabbit mAb #4499 (top right), or Oct-4A (C30A3) Rabbit mAb #2840 (bottom).

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.*

***Species cross-reactivity is determined by western blot.**

****Anti-rabbit secondary antibodies must be used to detect this antibody.**

Recommended Antibody Dilutions:

Western blotting	1:1000

For product specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended complementary products.

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.

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

Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **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 **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.