Store at -20°C

Phospho-Ezh2 (Thr311) Antibody

#27888

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New 01/18

Entrez-Gene ID #2146
UniProt ID #Q15910

For Research Use Only. Not For Use In Diagnostic Procedures.

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W Endogenous	H, (M, R, C)	98 kDa	Rabbit**

Background: The polycomb group (PcG) proteins are involved in maintaining the silenced state of several developmentally regulated genes and contribute to the maintenance of cell identity, cell cycle regulation, and oncogenesis (1,2). Enhancer of zeste homolog 2 (Ezh2), a member of this large protein family, contains four conserved regions including domain I, domain II, and a cysteine-rich amino acid stretch that precedes the carboxy-terminal SET domain (3). The SET domain has been linked with histone methyltransferase (HMTase) activity. Moreover, mammalian Ezh2 is a member of a histone deacetylase complex that functions in gene silencing, acting at the level of chromatin structure (4). Ezh2 complexes methylate histone H3 at Lys9 and 27 *in vitro*, which is thought to be involved in targeting transcriptional regulators to specific loci (5). Ezh2 is deregulated in various tumor types, and its role, both as a primary effector and as a mediator of tumorigenesis, has become a subject of increased interest (6).

Ezh2 is phosphorylated on Thr311 by AMP-activated protein kinase (AMPK) in response to sustained energy starvation (7). Phosphorylation of Thr311 disrupts the interaction between Ezh2 and SUZ12, leading to attenuation of Ezh2 histone methyltransferase activity and suppression of oncogenic function (7). In addition, phosphorylation of Ezh2 on Thr311 correlates with better survival in ovarian and breast cancer patients (7).

Background References:

(1) Sellers, W.R. and Loda, M. (2002) *Cancer Cell* 2, 349-50.

(2) Visser, H.P. et al. (2001) *Br J Haematol* 112, 950-8.

(3) Chen, H. et al. (1996) *Genomics* 38, 30-7.

(4) Tonini, T. et al. (2004) *Oncogene* 23, 4930-7.

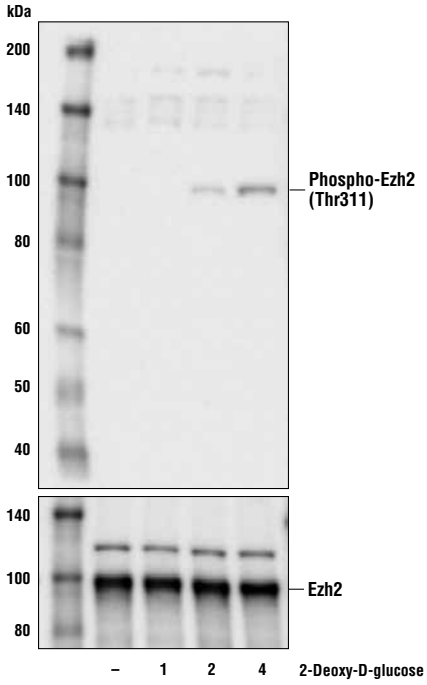
(5) Müller, J. et al. (2002) *Cell* 111, 197-208.

(6) Kleer, C.G. et al. (2003) *Proc Natl Acad Sci U S A* 100, 11606-11.

(7) Wan, L. et al. (2018) *Mol Cell* 69, 279-291.e5.

Specificity/Sensitivity: Phospho-Ezh2 (Thr311) Antibody recognizes endogenous levels of Ezh2 protein only when phosphorylated at Thr311.

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Thr311 of human EZH2 protein. Antibodies are purified by protein A and peptide affinity chromatography.



Western blot analysis of extracts from OVCAR8 cells, untreated (-) or treated with 2-Deoxy-D-glucose (10 mM for 1, 2, and 4 hr), using Phospho-Ezh2 (Thr311) Antibody (upper) or Ezh2 (D2C9) XP® Rabbit mAb #5246 (lower).

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.*

***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 and a complete listing of recommended companion products please see the product web page at www.cellsignal.com.

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.

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Applications: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide **Species Cross-Reactivity:** **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.