

Di-Methyl Histone H3 (Lys4) Blocking Peptide



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Description: This peptide is used to block Di-Methyl-Histone H3 (Lys4) (C64G9) Rabbit mAb #9725 reactivity in peptide dot blot protocols.

Background: The nucleosome, made up of four core histone proteins (H2A, H2B, H3, and H4), is the primary building block of chromatin. Originally thought to function as a static scaffold for DNA packaging, histones have now been shown to be dynamic proteins, undergoing multiple types of post-translational modifications, including acetylation, phosphorylation, methylation, and ubiquitination (1). Histone methylation is a major determinant for the formation of active and inactive regions of the genome and is crucial for the proper programming of the genome during development (2,3). Arginine methylation of histones H3 (Arg2, 17, 26) and H4 (Arg3) promotes transcriptional activation and is mediated by a family of protein arginine methyltransferases (PRMTs), including the co-activators PRMT1 and CARM1 (PRMT4) (4). In contrast, a more diverse set of histone lysine methyltransferases has been identified, all but one of which contain a conserved catalytic SET domain originally identified in the *Drosophila* Su(var)3-9, Enhancer of zeste, and Trithorax proteins. Lysine methylation occurs primarily on histones H3 (Lys4, 9, 27, 36, 79) and H4 (Lys20) and has been implicated in both transcriptional activation and silencing (4). Methylation of these lysine residues coordinates the recruitment of chromatin modifying enzymes containing methyl-lysine binding modules such as chromodomains (HP1, PRC1), PHD fingers (BPTF, ING2), tudor domains (53BP1), and WD-40 domains (WDR5) (5-8). The discovery of histone demethylases such as PADI4, LSD1, JMJD1, JMJD2, and JHDM1 has shown that methylation is a reversible epigenetic marker (9).

Quality Control: The quality of the peptide was evaluated by reversed-phase HPLC and by mass spectrometry. The peptide blocks Di-Methyl Histone H3 (Lys4) (C64G9) Rabbit mAb #9725 by peptide dot blot.

Directions For Use: Use as a blocking reagent to evaluate the specificity of antibody reactivity in peptide dot blot protocols. Recommended antibody dilutions can be found on the relevant product data sheet.

Background References:

- (1) Peterson, C.L. and Lanier, M.A. (2004) *Curr. Biol.* 14, R546–R551.
- (2) Kubicek, S. et al. (2006) *Ernst Schering Res. Found Workshop*, 1–27.
- (3) Lin, W. and Dent, S.Y. (2006) *Curr. Opin. Genet. Dev.* 16, 137–142.
- (4) Lee, D.Y. et al. (2005) *Endocr. Rev.* 26, 147–170.
- (5) Daniel, J.A. et al. (2005) *Cell Cycle* 4, 919–926.
- (6) Shi, X. et al. (2006) *Nature* 442, 96–99.
- (7) Wysocka, J. et al. (2006) *Nature* 442, 86–90.
- (8) Wysocka, J. et al. (2005) *Cell* 121, 859–872.
- (9) Trojer, P. and Reinberg, D. (2006) *Cell* 125, 213–217.

Entrez-Gene ID #8350

UniProt ID # P58431

Storage: Supplied in 20 mM potassium phosphate (pH 7.0), 50 mM NaCl, 0.1 mM EDTA, 1 mg/ml BSA and 5% glycerol. 1% DMSO Store at -20°C.