Revision 4

Store at -20C

#13222

Symmetric Di-Methyl Arginine Motif [sdme-RG] MultiMab® Rabbit mAb mix

Cell Signaling TECHNOLOGY®

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

Applications:	Reactivity:	Sensitivity:	Source/Isotype:
W	All	Endogenous	Rabbit IgG

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

Symmetric Di-Methyl Arginine Motif [sdme-RG] MultiMab® Rabbit mAb mix recognizes endogenous levels of proteins that are symmetrically dimethylated on arginine residues. This antibody does not cross-react with monomethylated, asymmetrically methylated arginine, or methylated lysine residues.

Source / Purification

MultiMab® rabbit monoclonal mix antibodies are prepared by combining individual rabbit monoclonal clones in optimized ratios for the approved applications. Each antibody in the mix is carefully selected based on motif recognition and performance in multiple assays. Each mix is engineered to yield the broadest possible coverage of the modification being studied while ensuring a high degree of specificity for the modification or motif.

Background

Arginine methylation is a prevalent PTM found on both nuclear and cytoplasmic proteins. Arginine methylated proteins are involved in many different cellular processes, including transcriptional regulation, signal transduction, RNA metabolism, and DNA damage repair (1-3). Arginine methylation is carried out by the arginine N-methyltransferase (PRMT) family of enzymes that catalyze the transfer of a methyl group from S-adenosylmethionine (AdoMet) to a guanidine nitrogen of arginine (4). There are three different types of arginine methylation: asymmetric dimethylarginine (aDMA, omega-NG,NG-dimethylarginine), where two methyl groups are placed on one of the terminal nitrogen atoms of the guanidine group of arginine; symmetric dimethylarginine (sDMA, omega-NG,NG-dimethylarginine), where one methyl group is placed on each of the two terminal guanidine nitrogens of arginine; and monomethylarginine (MMA, omega-NG-methylarginine), where a single methyl group is placed on one of the terminal nitrogen atoms of arginine. Each of these modifications has potentially different functional consequences. Though all PRMT proteins catalyze the formation of MMA, Type I PRMTs (PRMT1, 3, 4, 6, and 8) add an additional methyl group to produce aDMA, while Type II PRMTs (PRMT5 and 7) produce sDMA. Methylated arginine residues often reside in glycine-arginine rich (GAR) protein domains, such as RGG, RG, and RXR repeats (5). However, PRMT4/CARM1 and PRMT5 methylate arginine residues within proline-glycine-methionine rich (PGM) motifs (6).

Symmetrically dimethylated (sDMA) histone H4R3 is prevalent in undifferentiated mouse embryonic neural precursors, but both symmetric and asymmetric dimethyl (aDMA) H4R3 modifications are detected in post-mitotic neurons and developing oligodendrocytes during later stages of development. This implies that sDMA modifications may be negative epigenetic regulatory events while aDMA modifications may signal epigenetic activation sites (7).

Background References

1. Bedford, M.T. and Richard, S. (2005) *Mol Cell* 18, 263-72.
2. Pahlich, S. et al. (2006) *Biochim Biophys Acta* 1764, 1890-903.
3. Bedford, M.T. and Clarke, S.G. (2009) *Mol Cell* 33, 1-13.
4. McBride, A.E. and Silver, P.A. (2001) *Cell* 106, 5-8.
5. Gary, J.D. and Clarke, S. (1998) *Prog Nucleic Acid Res Mol Biol* 61, 65-131.
6. Cheng, D. et al. (2007) *Mol Cell* 25, 71-83.
7. Chittka, A. (2010) *PLoS One* 5, e13807.

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

All: All Species Expected

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