

PRMT6 (m2): 293T Lysate: sc-122781

BACKGROUND

A class of proteins termed type 1 protein arginine N-methyltransferase (PRMT) enzymes contribute to posttranslational modification of RNA-binding proteins, but differ in substrate specificities, oligomerization properties and subcellular localization. PRMTs contain an S-adenosylmethionine motif which functions to add one or two methyl groups to guanidino nitrogens of arginine (R) side chains. PRMT6, also known as HRMT1L6, is a nuclear protein belonging to the PRMT family and is predominantly expressed in testis and kidney. It is known to methylate Histones H3, H4 and H2A. PRMT6 is the major dimethyltransferase for Histone H3 and specifically methylates Histone H3 at R2. Methylation at Histone H3 R2 acts to inhibit Histone H3 K4 trimethylation and ultimately leads to the transcriptional repression of genes that are activated by Histone H3 K4 trimethylation. In addition, PRMT6 methylates HIV TAT, possibly functioning as a form of cellular innate immunity to restrict levels of HIV replication.

REFERENCES

1. Boulanger, M.C., Liang, C., Russell, R.S., Lin, R., Bedford, M.T., Wainberg, M.A. and Richard, S. 2005. Methylation of TAT by PRMT6 regulates human immunodeficiency virus type 1 gene expression. *J. Virol.* 79: 124-131.
2. Miranda, T.B., Webb, K.J., Edberg, D.D., Reeves, R. and Clarke, S. 2005. Protein arginine methyltransferase 6 specifically methylates the nonhistone chromatin protein HMGA1a. *Biochem. Biophys. Res. Commun.* 336: 831-835.
3. El-Andaloussi, N., Valovka, T., Touelle, M., Steinacher, R., Focke, F., Gehrig, P., Covic, M., Hassa, P.O., Schär, P., Hübscher, U. and Hottiger, M.O. 2006. Arginine methylation regulates DNA polymerase β . *Mol. Cell.* 22: 51-62.
4. Sgarra, R., Lee, J., Tessari, M.A., Altamura, S., Spolaore, B., Giancotti, V., Bedford, M.T. and Manfioletti, G. 2006. The AT-hook of the chromatin architectural transcription factor high mobility group A1a is arginine-methylated by protein arginine methyltransferase 6. *J. Biol. Chem.* 281: 3764-3772.
5. Hyllus, D., Stein, C., Schnabel, K., Schiltz, E., Imhof, A., Dou, Y., Hsieh, J. and Bauer, U.M. 2007. PRMT6-mediated methylation of R2 in Histone H3 antagonizes H3 K4 trimethylation. *Genes Dev.* 21: 3369-3380.
6. Guccione, E., Bassi, C., Casadio, F., Martinato, F., Cesaroni, M., Schuchlautz, H., Lüscher, B. and Amati, B. 2007. Methylation of histone H3R2 by PRMT6 and H3K4 by an MLL complex are mutually exclusive. *Nature* 449: 933-937.
7. Invernizzi, C.F., Xie, B., Frankel, F.A., Feldhammer, M., Roy, B.B., Richard, S. and Wainberg, M.A. 2007. Arginine methylation of the HIV-1 nucleocapsid protein results in its diminished function. *AIDS* 21: 795-805.
8. Xie, B., Invernizzi, C.F., Richard, S. and Wainberg, M.A. 2007. Arginine methylation of the human immunodeficiency virus type 1 TAT protein by PRMT6 negatively affects TAT interactions with both cyclin T1 and the TAT transactivation region. *J. Virol.* 81: 4226-4234.
9. Iberg, A.N., Espejo, A., Cheng, D., Kim, D., Michaud-Levesque, J., Richard, S. and Bedford, M.T. 2008. Arginine methylation of the Histone H3 tail impedes effector binding. *J. Biol. Chem.* 283: 3006-3010.

CHROMOSOMAL LOCATION

Genetic locus: Prmt6 (mouse) mapping to 3 F3.

PRODUCT

PRMT6 (m2): 293T Lysate represents a lysate of mouse PRMT6 transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

PRMT6 (m2): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive PRMT6 antibodies. Recommended use: 10-20 μ l per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.