

MCM-BP siRNA (h): sc-90695

BACKGROUND

The mini-chromosome maintenance (MCM) family of proteins are regulators of DNA replication that act to ensure that replication occurs only once in the cell cycle. Expression of MCM proteins increases during cell growth and peaks at G₁ to S phase. The MCM proteins each contain an ATP-binding motif, which is predicted to mediate ATP-dependent opening of double-stranded DNA. MCM proteins are regulated by E2F transcription factors, which induce MCM expression, and by protein kinases, which interact with MCM proteins to maintain the postreplicative state of the cell. MCM-BP (MCM-binding protein) is a 642 amino acid nuclear protein that associates with the MCM complex during late S phase to cause the complex to disassociate from chromatin. MCM-BP exists as three alternatively spliced isoforms and is encoded by a gene that maps to human chromosome 10q26.11.

REFERENCES

1. Tye, B.K. 1999. MCM proteins in DNA replication. *Annu. Rev. Biochem.* 68: 649-686.
2. Forsburg, S.L. 2004. Eukaryotic MCM proteins: beyond replication initiation. *Microbiol. Mol. Biol. Rev.* 68: 109-131.
3. Snyder, M., Huang, X.Y. and Zhang, J.J. 2009. The minichromosome maintenance proteins 2-7 (MCM2-7) are necessary for RNA polymerase II (Pol II)-mediated transcription. *J. Biol. Chem.* 284: 13466-13472.
4. Shin, J.W., Kim, Y.K. and Cho, K.H. 2010. Minichromosome maintenance protein expression according to the grade of atypism in actinic keratosis. *Am. J. Dermatopathol.* 32: 794-798.
5. Nakaya, R., Takaya, J., Onuki, T., Moritani, M., Nozaki, N. and Ishimi, Y. 2010. Identification of proteins that may directly interact with human RPA. *J. Biochem.* 148: 539-547.
6. Takahashi, N., Quimbaya, M., Schubert, V., Lammens, T., Vandepoele, K., Schubert, I., Matsui, M., Inze, D., Berx, G. and De Veylder, L. 2010. The MCM-binding protein ETG1 aids sister chromatid cohesion required for postreplicative homologous recombination repair. *PLoS Genet.* 6: e1000817.
7. Nowinska, K. and Dziegiel, P. 2010. The role of MCM proteins in cell proliferation and tumorigenesis. *Postepy Hig. Med. Dosw.* 64: 627-635.
8. Nishiyama, A., Frappier, L. and Mechali, M. 2011. MCM-BP regulates unloading of the MCM2-7 helicase in late S phase. *Genes Dev.* 25: 165-175.

CHROMOSOMAL LOCATION

Genetic locus: MCMBP (human) mapping to 10q26.11.

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.

PRODUCT

MCM-BP siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MCM-BP shRNA Plasmid (h): sc-90695-SH and MCM-BP shRNA (h) Lentiviral Particles: sc-90695-V as alternate gene silencing products.

For independent verification of MCM-BP (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-90695A, sc-90695B and sc-90695C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

MCM-BP siRNA (h) is recommended for the inhibition of MCM-BP expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MCM-BP gene expression knockdown using RT-PCR Primer: MCM-BP (h)-PR: sc-90695-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.