

MCM6 (B-4): sc-55576

BACKGROUND

The mini-chromosome maintenance (MCM) family of proteins, including MCM2, MCM3, MCM4 (Cdc21), MCM5 (Cdc46), MCM6 (Mis5) and MCM7 (Cdc47), are regulators of DNA replication that act to ensure replication occurs only once in the cell cycle. Expression of MCM proteins increases during cell growth, peaking 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. MCM2/MCM4 complexes function as substrates for Cdc2/cyclin B *in vitro*. Cleavage of MCM3, which can be prevented by caspase inhibitors, results in the inactivation during apoptosis of the MCM complex, which is composed of, at least, MCM2-6. A complex composed of MCM4, MCM6 and MCM7 has been shown to be involved in DNA helicase activity, and MCM5 is involved in IFN- γ -induced Stat1 α transcription activation.

REFERENCES

1. Koonin, E.V. 1993. A common set of conserved motifs in a vast variety of putative nucleic acid-dependent ATPases including MCM proteins involved in the initiation of eukaryotic DNA replication. *Nucleic Acids Res.* 21: 2541-2547.
2. Ishimi, Y. 1997. A DNA helicase activity is associated with an MCM4, -6, and -7 protein complex. *J. Biol. Chem.* 272: 24508-24513.
3. Leone, G., et al. 1998. E2F3 activity is regulated during the cell cycle and is required for the induction of S phase. *Genes Dev.* 12: 2120-2130.
4. Coverley, D., et al. 1998. Protein kinase inhibition in G₂ causes mammalian MCM proteins to reassociate with chromatin and restores ability to replicate. *Exp. Cell Res.* 238: 63-69.
5. Schwab, B.L., et al. 1998. Selective proteolysis of the nuclear replication factor MCM3 in apoptosis. *Exp. Cell Res.* 238: 415-421.
6. Fujita, M., et al. 1998. Cell cycle- and chromatin binding state-dependent phosphorylation of human MCM heterohexameric complexes. A role for Cdc2 kinase. *J. Biol. Chem.* 273: 17095-17101.
7. Zhang, J.J., et al. 1998. Ser727-dependent recruitment of MCM5 by Stat1 α in IFN- γ -induced transcriptional activation. *EMBO J.* 17: 6963-6971.

CHROMOSOMAL LOCATION

Genetic locus: MCM6 (human) mapping to 2q21.3; Mcm6 (mouse) mapping to 1 E4.

SOURCE

MCM6 (B-4) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of MCM6 of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

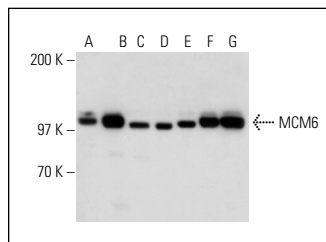
MCM6 (B-4) is recommended for detection of MCM6 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MCM6 siRNA (h): sc-35885, MCM6 siRNA (m): sc-35886, MCM6 shRNA Plasmid (h): sc-35885-SH, MCM6 shRNA Plasmid (m): sc-35886-SH, MCM6 shRNA (h) Lentiviral Particles: sc-35885-V and MCM6 shRNA (m) Lentiviral Particles: sc-35886-V.

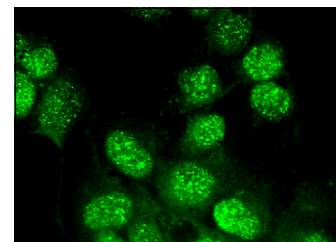
Molecular Weight of MCM6: 105 kDa.

Positive Controls: MM-142 cell lysate: sc-2246, KNRK whole cell lysate: sc-2214 or Jurkat whole cell lysate: sc-2204.

DATA



MCM6 (B-4): sc-55576. Western blot analysis of MCM6 expression in HeLa (A), ALL-SIL (B), MM-142 (C), NIH/3T3 (D), KNRK (E), K-562 (F) and Jurkat (G) whole cell lysates.



MCM6 (B-4): sc-55576. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Dumit, V.I., et al. 2014. Altered MCM protein levels and autophagic flux in aged and systemic sclerosis dermal fibroblasts. *J. Invest. Dermatol.* 134: 2321-2330.
2. Liu, D., et al. 2020. Protein diaphanous homolog 1 (Diaph1) promotes myofibroblastic activation of hepatic stellate cells by regulating Rab5a activity and TGF β receptor endocytosis. *FASEB J.* 34: 7345-7359.
3. Böhly, N., et al. 2022. Increased replication origin firing links replication stress to whole chromosomal instability in human cancer. *Cell Rep.* 41: 111836.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

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