

MCM3 (36-Q-7): sc-81848

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

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- 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.
- 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.
- 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.
- Schwab, B.L., et al. 1998. Selective proteolysis of the nuclear replication factor MCM3 in apoptosis. *Exp. Cell Res.* 238: 415-421.
- 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: MCM3 (human) mapping to 6p12.2; Mcm3 (mouse) mapping to 1 A4.

STORAGE

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

PROTOCOLS

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

SOURCE

MCM3 (36-Q-7) is a mouse monoclonal antibody raised against recombinant MCM3 of human origin.

PRODUCT

Each vial contains 50 μ g IgG_{2a} in 500 μ l PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MCM3 (36-Q-7) is recommended for detection of MCM3 of mouse and human origin by Western Blotting (starting dilution 1:200, 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 MCM3 siRNA (h): sc-35881, MCM3 siRNA (m): sc-35882, MCM3 shRNA Plasmid (h): sc-35881-SH, MCM3 shRNA Plasmid (m): sc-35882-SH, MCM3 shRNA (h) Lentiviral Particles: sc-35881-V and MCM3 shRNA (m) Lentiviral Particles: sc-35882-V.

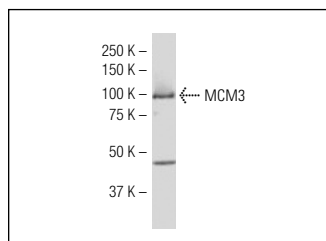
Molecular Weight of MCM3: 115 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, HeLa whole cell lysate: sc-2200 or NIH/3T3 whole cell lysate: sc-2210.

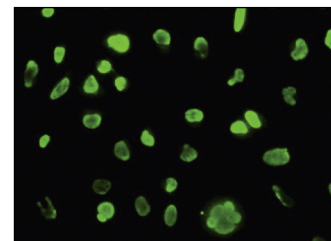
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



MCM3 (36-Q-7): sc-81848. Western blot analysis of MCM3 expression in COLO 320 HSR whole cell lysate.



MCM3 (36-Q-7): sc-81848. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing nuclear localization.

RESEARCH USE

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