

MCM3 (E-7): sc-365616



The Power to Question

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 Stat1a transcription activation.

CHROMOSOMAL LOCATION

Genetic locus: MCM3 (human) mapping to 6p12.2; Mcm3 (mouse) mapping to 1 A4.

SOURCE

MCM3 (E-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 3-27 at the N-terminus of MCM3 of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-365616 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

MCM3 (E-7) is recommended for detection of MCM3 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).

MCM3 (E-7) is also recommended for detection of MCM3 in additional species, including canine and bovine.

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.

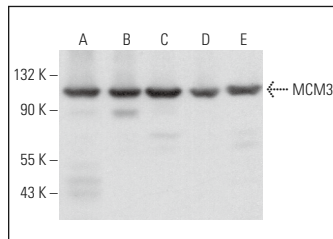
Molecular Weight of MCM3: 115 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, HEL 92.1.7 cell lysate: sc-2270 or PC-12 cell lysate: sc-2250.

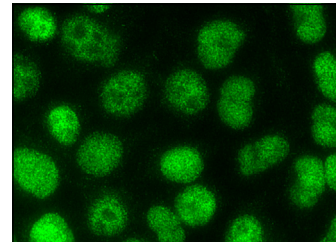
STORAGE

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

DATA



MCM3 (E-7): sc-365616. Western blot analysis of MCM3 expression in K-562 (A), HEL 92.1.7 (B), Jurkat (C), 3T3-L1 (D) and PC-12 (E) whole cell lysates.



MCM3 (E-7): sc-365616. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

- Nath, S., et al. 2017. FANCF helicase controls the balance between short- and long-tract gene conversions between sister chromatids. *Nucleic Acids Res.* 45: 8886-8900.
- Drissi, R., et al. 2018. Destabilization of the minichromosome maintenance (MCM) complex modulates the cellular response to DNA double strand breaks. *Cell Cycle* 17: 2593-2609.
- Saxena, S., et al. 2018. XRCC2 regulates replication fork progression during dNTP alterations. *Cell Rep.* 25: 3273-3282.e6.
- Mishra, A., et al. 2018. Rad51C/XRCC3 facilitates mitochondrial DNA replication and maintains integrity of the mitochondrial genome. *Mol. Cell. Biol.* 38: e00489-17.
- Jiang, B., et al. 2019. Identifying UBA2 as a proliferation and cell cycle regulator in lung cancer A549 cells. *J. Cell. Biochem.* 120: 12752-12761.
- Saxena, S., et al. 2019. ATR signaling uncouples the role of Rad51 paralogs in homologous recombination and replication stress response. *Cell Rep.* 29: 551-559.e4.
- Nath, S. and Nagaraju, G. 2020. FANCF helicase promotes DNA end resection by facilitating CtIP recruitment to DNA double-strand breaks. *PLoS Genet.* 16: e1008701.
- Liu, N., et al. 2020. The cross-talk between methylation and phosphorylation in lymphoid-specific helicase drives cancer stem-like properties. *Signal Transduct. Target. Ther.* 5: 197.
- Dixit, S., et al. 2024. RTEL1 helicase counteracts RAD51-mediated homologous recombination and fork reversal to safeguard replicating genomes. *Cell Rep.* 43: 114594.

RESEARCH USE

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