

MCM4 (G-7): sc-28317



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 of the MCM complex (composed of at least MCM proteins 2-6) during apoptosis. 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.

CHROMOSOMAL LOCATION

Genetic locus: MCM4 (human) mapping to 8q11.21; Mcm4 (mouse) mapping to 16 A2.

SOURCE

MCM4 (G-7) is a mouse monoclonal antibody raised against amino acids 1-300 of MCM4 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.

MCM4 (G-7) is available conjugated to agarose (sc-28317 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-28317 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-28317 PE), fluorescein (sc-28317 FITC), Alexa Fluor[®] 488 (sc-28317 AF488), Alexa Fluor[®] 546 (sc-28317 AF546), Alexa Fluor[®] 594 (sc-28317 AF594) or Alexa Fluor[®] 647 (sc-28317 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-28317 AF680) or Alexa Fluor[®] 790 (sc-28317 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

MCM4 (G-7) is recommended for detection of MCM4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1,000), 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

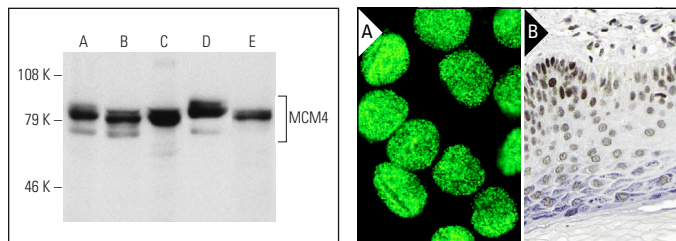
Suitable for use as control antibody for MCM4 siRNA (h): sc-37619, MCM4 siRNA (m): sc-37620, MCM4 shRNA Plasmid (h): sc-37619-SH, MCM4 shRNA Plasmid (m): sc-37620-SH, MCM4 shRNA (h) Lentiviral Particles: sc-37619-V and MCM4 shRNA (m) Lentiviral Particles: sc-37620-V.

Molecular Weight of MCM4: 100 kDa.

STORAGE

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

DATA



MCM4 (G-7): sc-28317. Western blot analysis of MCM4 expression in HeLa (A), NIH/3T3 (B) and KNRK (C) nuclear extracts and K-562 (D) and L8 (E) whole cell lysates.

MCM4 (G-7): sc-28317. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skin tissue showing nuclear staining of epidermal cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program (B).

SELECT PRODUCT CITATIONS

- Izumi, H., et al. 2010. Role of ZNF143 in tumor growth through transcriptional regulation of DNA replication and cell-cycle-associated genes. *Cancer Sci.* 101: 2538-2545.
- Lubelsky, Y., et al. 2011. Pre-replication complex proteins assemble at regions of low nucleosome occupancy within the Chinese hamster dihydrofolate reductase initiation zone. *Nucleic Acids Res.* 39: 3141-3155.
- Fernandez-Vidal, A., et al. 2014. A role for DNA polymerase θ in the timing of DNA replication. *Nat. Commun.* 5: 4285.
- Turnbull, A.K., et al. 2015. Accurate prediction and validation of response to endocrine therapy in breast cancer. *J. Clin. Oncol.* 33: 2270-2278.
- Tatsumi, R. and Ishimi, Y. 2017. An MCM4 mutation detected in cancer cells affects MCM4/6/7 complex formation. *J. Biochem.* 161: 259-268.
- Janjanam, J., et al. 2018. LIM and cysteine-rich domains 1 is required for thrombin-induced smooth muscle cell proliferation and promotes atherogenesis. *J. Biol. Chem.* 293: 3088-3103.
- Zasadzinska, E., et al. 2018. Inheritance of CENP-A nucleosomes during DNA replication requires HJURP. *Dev. Cell* 47: 348-362.e7.
- Apellániz, D., et al. 2018. Comparative study of the minichromosome maintenance proteins complex (MCM 4/5/6) in ameloblastoma and unicystic ameloblastoma. *Int. J. Surg. Pathol.* 26: 714-720.
- Kumar, A., et al. 2020. Microarray based gene expression profiling of advanced gall bladder cancer. *Exp. Oncol.* 42: 277-284.

RESEARCH USE

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

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