SANTA CRUZ BIOTECHNOLOGY, INC.

MCM4 (C-10): sc-48407

SANTA CRUZ BIOTECHNOLOGY

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 G_1 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^2/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 Stat1α transcription activation.

CHROMOSOMAL LOCATION

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

SOURCE

MCM4 (C-10) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of MCM4 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MCM4 (C-10) is recommended for detection of MCM4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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.

Positive Controls: MOLT-4 cell lysate: sc-2233, A-431 whole cell lysate: sc-2201 or C6 whole cell lysate: sc-364373.

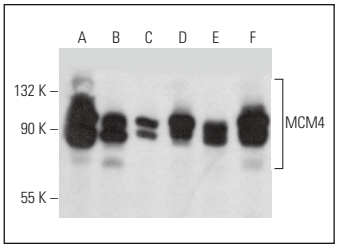
STORAGE

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

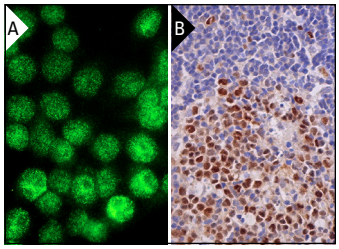
RESEARCH USE

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

DATA



MCM4 (C-10): sc-48407. Western blot analysis of MCM4 expression in MOLT-4 (**A**), A-431 (**B**), BC_3H1 (**C**), F9 (**D**), C6 (**E**) and AT-3 (**F**) whole cell lysates.



MCM4 (C-10): sc-48407. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing nuclear staining of cells in germinal and non-germinal centers (**B**).

SELECT PRODUCT CITATIONS

1. Kuipers, M.A., et al. 2011. Highly stable loading of MCM proteins onto chromatin in living cells requires replication to unload. J. Cell Biol. 192: 29-41.
2. Singh, A.M., et al. 2013. Cell-cycle control of developmentally regulated transcription factors accounts for heterogeneity in human pluripotent cells. Stem Cell Reports 1: 532-544.
3. Sun, L., et al. 2015. Identification of proteins associated with Aha1 in HeLa cells by quantitative proteomics. Biochim. Biophys. Acta 1854: 365-380.
4. Greil, C., et al. 2016. The role of APC/C(Cdh1) in replication stress and origin of genomic instability. Oncogene 35: 3062-3070.
5. Izumi, M., et al. 2017. The MCM^2-7-interacting domain of human mini-chromosome maintenance 10 (MCM10) protein is important for stable chromatin association and origin firing. J. Biol. Chem. 292: 13008-13021.
6. Tamberg, N., et al. 2018. Keap1-MCM3 interaction is a potential coordinator of molecular machineries of antioxidant response and genomic DNA replication in metazoa. Sci. Rep. 8: 12136.
7. Yadav, P., et al. 2022. M6A RNA methylation regulates histone ubiquitination to support cancer growth and progression. Cancer Res. 82: 1872-1889.

PROTOCOLS

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