SANTA CRUZ BIOTECHNOLOGY, INC.

MCM4 (H-300): sc-22779

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. 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 Stat1α transcription activation.

CHROMOSOMAL LOCATION

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

SOURCE

MCM4 (H-300) is a rabbit polyclonal antibody raised against amino acids 1-300 mapping at the N-terminus of MCM4 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MCM4 (H-300) is recommended for detection of MCM4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

MCM4 (H-300) is also recommended for detection of MCM4 in additional species, including equine and canine.

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: HeLa nuclear extract: sc-2120, NIH/3T3 nuclear extract: sc-2138 or K-562 nuclear extract: sc-2130.

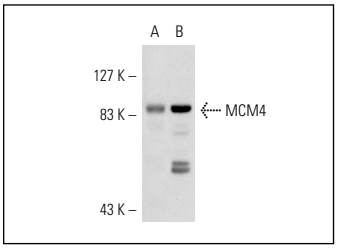
STORAGE

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

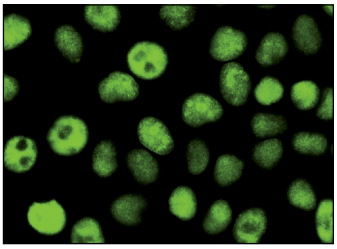
RESEARCH USE

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

DATA



MCM4 (H-300): sc-22779. Western blot analysis of MCM4 expression in HeLa (**A**) and K-562 (**B**) nuclear extracts.



MCM4 (H-300): sc-22779. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Chattopadhyay, S., et al. 2007. Interleukin-31 and Oncostatin M mediate distinct signaling reactions and response patterns in lung epithelial cells. J. Biol. Chem. 282: 3014-3026.
2. Bauerschmidt, C., et al. 2007. Interactions of human Cdc45 with the Mcm2-7 complex, the GINS complex, and DNA polymerases δ and ε during S phase. Genes Cells 12: 745-758.
3. Lu, X., et al. 2009. Cyclin E is stabilized in response to replication fork barriers leading to prolonged S phase arrest. J. Biol. Chem. 284: 35325-35337.
4. Thangavel, S., et al. 2010. Human RECQ1 and RECQ4 helicases play distinct roles in DNA replication initiation. Mol. Cell. Biol. 30: 1382-1396.
5. Liu, G., et al. 2012. Altered replication in human cells promotes DMPK (CTG)(n) · (CAG)(n) repeat instability. Mol. Cell. Biol. 32: 1618-1632.
6. Sugiyama, T., et al. 2012. Interaction of heliquinomycin with single-stranded DNA inhibits MCM4/6/7 helicase. J. Biochem. 151: 129-137.
7. Takaya, J., et al. 2013. Protein interaction and cellular localization of human CDC45. J. Biochem. 153: 381-388.

PROTOCOLS

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