SANTA CRUZ BIOTECHNOLOGY, INC.

MAD1 (C-5): sc-137025

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Cell cycle progression is subject to arrest at the mitotic spindle assembly checkpoint in response to incorrect spindle fiber assembly. MAD1 and MAD2 (for mitotic arrest-deficient 1 and 2) are components of the mitotic spindle checkpoint. Incorrect spindle assembly in normal cells leads to mitotic arrest. MAD1 prevents the onset of anaphase until all chromosomes are aligned correctly at the metaphase plate and is crucial for anchoring MAD2L1 to the nuclear periphery. It also plays an important role in septum positioning. MAD1 can form a homo-dimer, but may also form a heterodimer with MAD2 to form the tetrameric MAD1L1-MAD2L1 core complex. MAD1 localizes primarily to the nucleus, but during mitosis, it moves from a nuclear distribution to the centrosome, to the spindle midzone and then on to the midbody. MAD1 activity is induced by BUB1 and the protein is hyperphosphorylated after mitotic spindle damage and/or in late S through M phase. Defects in the gene encoding for MAD1, MAD1L1, play a major role in the development and progression of various cancer types.

CHROMOSOMAL LOCATION

Genetic locus: MAD1L1 (human) mapping to 7p22.3; Mad1l1 (mouse) mapping to 5 G2.

SOURCE

MAD1 (C-5) is a mouse monoclonal antibody raised against amino acids 241-540 mapping within an internal region of MAD1 of mouse 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.

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.

APPLICATIONS

MAD1 (C-5) is recommended for detection of MAD1 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MAD1 siRNA (h): sc-62577, MAD1 siRNA (m): sc-62578, MAD1 shRNA Plasmid (h): sc-62577-SH, MAD1 shRNA Plasmid (m): sc-62578-SH, MAD1 shRNA (h) Lentiviral Particles: sc-62577-V and MAD1 shRNA (m) Lentiviral Particles: sc-62578-V.

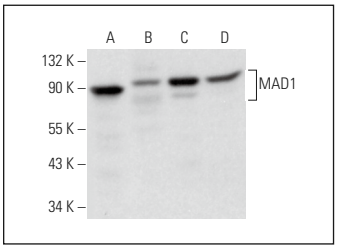
Molecular Weight of MAD1: 90 kDa.

Positive Controls: MAD1 (m): 293T Lysate: sc-121481, SK-N-SH cell lysate: sc-2410 or EOC 20 whole cell lysate: sc-364187.

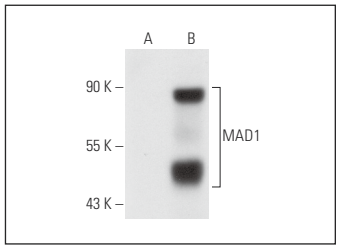
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



MAD1 (C-5): sc-137025. Western blot analysis of MAD1 expression in SK-N-SH (**A**), 3T3-L1 (**B**), EOC 20 (**C**) and C6 (**D**) whole cell lysates.



MAD1 (C-5): sc-137025. Western blot analysis of MAD1 expression in non-transfected: sc-117752 (**A**) and mouse MAD1 transfected: sc-121481 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Du, J., et al. 2015. Unique subcellular distribution of phosphorylated Plk1 (Ser137 and Thr210) in mouse oocytes during meiotic division and $pPlk1^{Ser137}$ involvement in spindle formation and REC8 cleavage. Cell Cycle 14: 3566-3579.
2. Cao, Y., et al. 2016. RNA-binding protein STAU2 is important for spindle integrity and meiosis progression in mouse oocytes. Cell Cycle 15: 2608-2618.
3. Yi, Z.Y., et al. 2019. PKCβ1 regulates meiotic cell cycle in mouse oocyte. Cell Cycle 18: 395-412.
4. Dong, F., et al. 2021. Inhibition of CDK4/6 kinases causes production of aneuploid oocytes by inactivating the spindle assembly checkpoint and accelerating first meiotic progression. Biochim. Biophys. Acta Mol. Cell Res. 1868: 119044.
5. Cao, Y., et al. 2022. Cystathionine β-synthase is required for oocyte quality by ensuring proper meiotic spindle assembly. Cell Prolif. 55: e13322.

PROTOCOLS

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

CONJUGATES

See **MAD1 (D-1): sc-166312** for MAD1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.