SANTA CRUZ BIOTECHNOLOGY, INC.

MAD2B (14): sc-135977

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. MAD2 (for mitotic arrest-deficient) is a component of the mitotic spindle checkpoint. Cells with mutated MAD2 do not undergo mitotic arrest in response to incorrect spindle fiber assembly, which results in missegregation and eventual cell death. A breast carcinoma cell line with reduced MAD2 expression, T-47D, was shown to complete mitosis in the presence of nocodazole, an inhibitor of mitotic spindle assembly. MAD2 is localized to unattached kinetochores during pro-metaphase and disassociates upon spindle fiber attachment, indicating that MAD2 regulates kinetochore binding to the spindle fibers. Human MAD2 has also been shown to associate with Insulin receptor (IR), but not IGF-IR, implicating MAD2 as a mediator for IR-specific signaling. MAD2B, a MAD2 homolog, is required for the execution of the mitotic checkpoint monitoring the kinetochore-spindle attachment process and, if the process is not complete, MAD2B delays the onset of anaphase.

CHROMOSOMAL LOCATION

Genetic locus: MAD2L2 (human) mapping to 1p36.22; Mad2l2 (mouse) mapping to 4 E2.

SOURCE

MAD2B (14) is a mouse monoclonal antibody raised against amino acids 81-180 of MAD2B 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

MAD2B (14) is recommended for detection of MAD2B 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

MAD2B (14) is also recommended for detection of MAD2B in additional species, including canine.

Suitable for use as control antibody for MAD2B siRNA (h): sc-106795, MAD2B siRNA (m): sc-149211, MAD2B shRNA Plasmid (h): sc-106795-SH, MAD2B shRNA Plasmid (m): sc-149211-SH, MAD2B shRNA (h) Lentiviral Particles: sc-106795-V and MAD2B shRNA (m) Lentiviral Particles: sc-149211-V.

Molecular Weight of MAD2B: 24 kDa.

Positive Controls: MAD2B (h): 293 Lysate: sc-113252, HeLa whole cell lysate: sc-2200 or K-562 whole cell lysate: sc-2203.

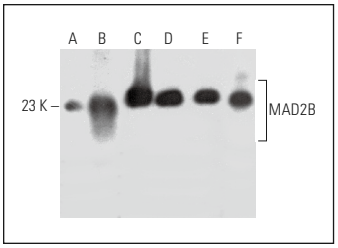
STORAGE

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

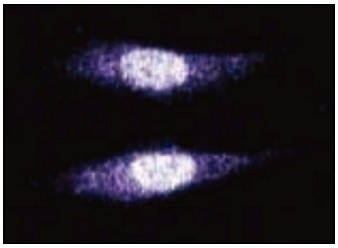
RESEARCH USE

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

DATA



MAD2B (14): sc-135977. Western blot analysis of MAD2B expression in non-transfected 293: sc-110760 (**A**), human MAD2B transfected 293: sc-113252 (**B**), K-562 (**C**), HeLa (**D**) and Neuro-2A (**E**) whole cell lysates and mouse embryo tissue extract (**F**).



MAD2B (14): sc-135977. Immunofluorescence staining of human endothelial cells showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Boersma, V., et al. 2015. MAD2L2 controls DNA repair at telomeres and DNA breaks by inhibiting 5' end resection. Nature 521: 537-540.
2. Feringa, F.M., et al. 2018. Persistent repair intermediates induce senescence. Nat. Commun. 9: 3923.
3. Simonetta, M., et al. 2018. H4K20me2 distinguishes pre-replicative from post-replicative chromatin to appropriately direct DNA repair pathway choice by 53BP1-RIF1-MAD2L2. Cell Cycle 17: 124-136.
4. Clairmont, C.S., et al. 2020. TRIP13 regulates DNA repair pathway choice through REV7 conformational change. Nat. Cell Biol. 22: 87-96.
5. Ma, L., et al. 2021. Oxaliplatin promotes siMAD2L2-induced apoptosis in colon cancer cells. Mol. Med. Rep. 24: 629.
6. de Krijger, I., et al. 2021. MAD2L2 dimerization and TRIP13 control shieldin activity in DNA repair. Nat. Commun. 12: 5421.
7. Adeyemi, R.O., et al. 2021. The Protexin complex counters resection on stalled forks to promote homologous recombination and crosslink repair. Mol. Cell 81: 4440-4456.e7.
8. Paniagua, I., et al. 2022. MAD2L2 promotes replication fork protection and recovery in a shieldin-independent and REV3L-dependent manner. Nat. Commun. 13: 5167.
9. Qi, H., et al. 2022. The ADP-ribose hydrolase NUDT5 is important for DNA repair. Cell Rep. 41: 111866.

PROTOCOLS

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