SANTA CRUZ BIOTECHNOLOGY, INC.

# MAD2 (107-276-3): sc-65492

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, T47D, was shown to complete mitosis in the presence of nocodazole, an inhibitor of mitotic spindle assembly. MAD2 is localized to unattached kinetochores during prometaphase 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 IGFIR, 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: MAD2L1 (human) mapping to 4q27; Mad2l1 (mouse) mapping to 6 C1.

## SOURCE

MAD2 (107-276-3) is a mouse monoclonal antibody raised against full length MAD2 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.

MAD2 (107-276-3) is available conjugated to agarose (sc-65492 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-65492 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-65492 PE), fluorescein (sc-65492 FITC), Alexa Fluor® 488 (sc-65492 AF488), Alexa Fluor® 546 (sc-65492 AF546), Alexa Fluor® 594 (sc-65492 AF594) or Alexa Fluor® 647 (sc-65492 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-65492 AF680) or Alexa Fluor® 790 (sc-65492 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.



## APPLICATIONS

MAD2 (107-276-3) is recommended for detection of MAD2 of mouse, rat and human origin by 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 MAD2 siRNA (h): sc-35837, MAD2 siRNA (m): sc-35838, MAD2 shRNA Plasmid (h): sc-35837-SH, MAD2 shRNA Plasmid (m): sc-35838-SH, MAD2 shRNA (h) Lentiviral Particles: sc-35837-V and MAD2 shRNA (m) Lentiviral Particles: sc-35838-V.

Molecular Weight of MAD2: 25 kDa.

## STORAGE

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

## SELECT PRODUCT CITATIONS


1. Rodrigue, A., et al. 2013. The Rad51 paralogs ensure cellular protection against mitotic defects and aneuploidy. J. Cell Sci. 126: 348-359.
2. Date, D.A., et al. 2014. Phosphorylation regulates the $p31^{Comet}$-mitotic arrest-deficient 2 (MAD2) interaction to promote spindle assembly checkpoint (SAC) activity. J. Biol. Chem. 289: 11367-11373.
3. Fuchs, M., et al. 2015. A role for the chaperone complex BAG3-HSPB8 in actin dynamics, spindle orientation and proper chromosome segregation during mitosis. PLoS Genet. 11: e1005582.
4. Tambe, M., et al. 2016. Novel MAD2-targeting miR-493-3p controls mitotic fidelity and cancer cells' sensitivity to paclitaxel. Oncotarget 7: 12267-12285.
5. Kyogoku, H. and Kitajima, T.S. 2017. Large cytoplasm is linked to the error-prone nature of oocytes. Dev. Cell 41: 287-298.e4.
6. Drpic, D., et al. 2018. Chromosome segregation is biased by kinetochore size. Curr. Biol. 28: 1344-1356.e5.
7. Pereira, C., et al. 2018. Self-assembly of the RZZ complex into filaments drives kinetochore expansion in the absence of microtubule attachment. Curr. Biol. 28: 3408-3421.e8.
8. Allu, P.K., et al. 2019. Structure of the human core centromeric nucleosome complex. Curr. Biol. 29: 2625-2639.e5.
9. Asai, Y., et al. 2020. SET/TAF1 forms a distance-dependent feedback loop with Aurora B and Bub1 as a tension sensor at centromeres. Sci. Rep. 10: 15653.
10. Yoshida, S., et al. 2020. Prc1-rich kinetochores are required for error-free acentrosomal spindle bipolarization during meiosis I in mouse oocytes. Nat. Commun. 11: 2652.
11. Gui, P., et al. 2020. Mps1 dimerization and multisite interactions with Ndc80 complex enable responsive spindle assembly checkpoint signaling. J. Mol. Cell Biol. 12: 486-498.
12. Tischer, T., et al. 2022. The APC/C targets the Cep152-Cep63 complex at the centrosome to regulate mitotic spindle assembly. J. Cell Sci. 135: jcs259273.
13. Almeida, A.C., et al. 2022. Augmin-dependent microtubule self-organization drives kinetochore fiber maturation in mammals. Cell Rep. 39: 110610.
14. Ferrandiz, N., et al. 2022. Endomembranes promote chromosome missegregation by ensheathing misaligned chromosomes. J. Cell Biol. 221: e202203021.


## RESEARCH USE

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