

MND1 (G-4): sc-377319

BACKGROUND

MND1 (meiotic nuclear division protein 1 homolog), also known as GAJ, is a 205 amino acid nuclear protein required for proper homologous chromosome pairing and meiotic double-strand break repair. Belonging to the MND1 family, MND1 localizes to chromatin during meiotic prophase and preferentially binds double-stranded DNA. MND1 forms a stable heterodimeric complex with HOP2, which binds DNA to activate the recombinase activity of DMC1 and RAD51. Disruption of the MND1-HOP2 complex leads to failure in meiotic recombination and extreme defects in homologous chromosome synapsis. MND1 is encoded by a gene that maps to human chromosome 4, which houses nearly 6% of the human genome and has the largest gene deserts (regions of the genome with no protein encoding genes) of all human chromosomes. Defects in some of the genes located on chromosome 4 are associated with Huntington's disease, Ellis-van Creveld syndrome, methylmalonic acidemia and polycystic kidney disease.

REFERENCES

1. Tsubouchi, H., et al. 2002. The MND1 protein forms a complex with hop2 to promote homologous chromosome pairing and meiotic double-strand break repair. *Mol. Cell. Biol.* 22: 3078-3088.
2. Dobson, C.M., et al. 2002. Identification of the gene responsible for the cblA complementation group of vitamin B12-responsive methylmalonic acidemia based on analysis of prokaryotic gene arrangements. *Proc. Natl. Acad. Sci. USA* 99: 15554-15559.
3. Velinov, M., et al. 2005. Polycystic kidneys and del (4)(q21.1q21.3): further delineation of a distinct phenotype. *Eur. J. Med. Genet.* 48: 51-55.

CHROMOSOMAL LOCATION

Genetic locus: MND1 (human) mapping to 4q31.3; Mnd1 (mouse) mapping to 3 F1.

SOURCE

MND1 (G-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 181-203 at the C-terminus of MND1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-377319 X, 200 µg/0.1 ml.

MND1 (G-4) is available conjugated to agarose (sc-377319 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-377319 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377319 PE), fluorescein (sc-377319 FITC), Alexa Fluor® 488 (sc-377319 AF488), Alexa Fluor® 546 (sc-377319 AF546), Alexa Fluor® 594 (sc-377319 AF594) or Alexa Fluor® 647 (sc-377319 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377319 AF680) or Alexa Fluor® 790 (sc-377319 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-377319 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

MND1 (G-4) is recommended for detection of MND1 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 MND1 siRNA (h): sc-89043, MND1 siRNA (m): sc-149487, MND1 shRNA Plasmid (h): sc-89043-SH, MND1 shRNA Plasmid (m): sc-149487-SH, MND1 shRNA (h) Lentiviral Particles: sc-89043-V and MND1 shRNA (m) Lentiviral Particles: sc-149487-V.

MND1 (G-4) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of MND1: 24 kDa.

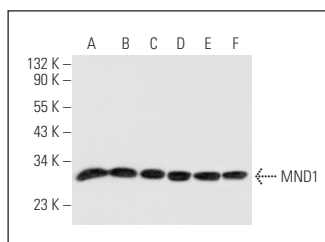
Positive Controls: Jurkat whole cell lysate: sc-2204, HeLa whole cell lysate: sc-2200 or K-562 whole cell lysate: sc-2203.

RECOMMENDED SUPPORT REAGENTS

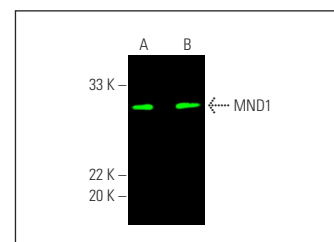
To ensure optimal results, the following support reagents are recommended:

- 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



MND1 (G-4): sc-377319. Western blot analysis of MND1 expression in Jurkat (A), K-562 (B) and HeLa (C) nuclear extracts and HeLa (D), Jurkat (E) and K-562 (F) whole cell lysates.



MND1 (G-4): sc-377319. Near-infrared western blot analysis of MND1 expression in K-562 (A) and Jurkat (B) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.

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.

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