SANTA CRUZ BIOTECHNOLOGY, INC.

mrnp41 (H-3): sc-393252

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

mrnp41 (mRNA-binding protein, 41-KD), also known as Rae1 protein homolog and mRNA export factor, is a 368 amino acid protein that binds mRNA and is involved in nucleocytoplasmic transport. Though characterized in both the nucleus and cytoplasm, mrnp41 is primarily localized to the nuclear pore complex in the nuclear envelope. Mutations in mrnp41 may result in the accumulation of poly(A)-containing mRNA in the nucleus, further supporting the role of mrnp41 as a primary nuclear exporter of mRNA. Along with Nup98, mrnp41 has been shown to regulate E-cadherin, an activating subunit of the anaphase-promoting complex complex, which results in the prevention of securin degradation, therefore suggesting that mrnp41 may play a potential role in maintaining euploidy. Also, during mitosis, both mrnp41 and NuMA have been shown to be required for bipolar spindle formation.

REFERENCES

1. Bharathi, A., et al. 1997. The human RAE1 gene is a functional homologue of *Schizosaccharomyces pombe* rae1 gene involved in nuclear export of poly(A)+ RNA. Gene 198: 251-258.
2. Kraemer, D. and Blobel, G. 1997. mRNA binding protein mrnp41 localizes to both nucleus and cytoplasm. Proc. Natl. Acad. Sci. USA 94: 9119-9124.
3. Kraemer, D., et al. 2001. mrnp41 (Rae 1p) associates with microtubules in HeLa cells and in neurons. Eur. J. Cell Biol. 80: 733-740.
4. Zenklusen, D. and Stutz, F. 2001. Nuclear export of mRNA. FEBS Lett. 498: 150-156.
5. Jeganathan, K.B., et al. 2005. The Rae1-Nup98 complex prevents aneuploidy by inhibiting securin degradation. Nature 438: 1036-1039.

CHROMOSOMAL LOCATION

Genetic locus: RAE1 (human) mapping to 20q13.31; Rae1 (mouse) mapping to 2 H3.

SOURCE

mrnp41 (H-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 12-39 near the N-terminus of mrnp41 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

mrnp41 (H-3) is available conjugated to agarose (sc-393252 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-393252 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393252 PE), fluorescein (sc-393252 FITC), Alexa Fluor® 488 (sc-393252 AF488), Alexa Fluor® 546 (sc-393252 AF546), Alexa Fluor® 594 (sc-393252 AF594) or Alexa Fluor® 647 (sc-393252 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393252 AF680) or Alexa Fluor® 790 (sc-393252 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-393252 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

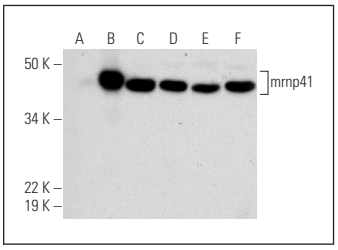
mrnp41 (H-3) is recommended for detection of mrnp41 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 mrnp41 siRNA (h): sc-75825, mrnp41 siRNA (m): sc-75826, mrnp41 shRNA Plasmid (h): sc-75825-SH, mrnp41 shRNA Plasmid (m): sc-75826-SH, mrnp41 shRNA (h) Lentiviral Particles: sc-75825-V and mrnp41 shRNA (m) Lentiviral Particles: sc-75826-V.

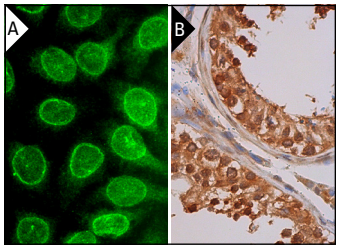
Molecular Weight of mrnp41: 43 kDa.

Positive Controls: mrnp41 (h): 293T Lysate: sc-111781, Jurkat whole cell lysate: sc-2204 or HeLa whole cell lysate: sc-2200.

DATA



mrnp41 (H-3): sc-393252. Western blot analysis of mrnp41 expression in non-transfected 293T: sc-117752 (**A**), human mrnp41 transfected 293T: sc-111781 (**B**), Jurkat (**C**), HeLa (**D**), MCF7 (**E**) and Hep G2 (**F**) whole cell lysates.



mrnp41 (H-3): sc-393252. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear envelope localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic and nuclear staining of cells in seminiferous ducts and cytoplasmic staining of Leydig cells (**B**).

SELECT PRODUCT CITATIONS

1. Kato, K., et al. 2020. Overexpression of SARS-CoV-2 protein ORF6 dislocates RAE1 and Nup98 from the nuclear pore complex. Biochem. Biophys. Res. Commun. 536: 59-66.
2. Chen, F., et al. 2021. Ribonucleic acid export 1 is a kinetochore-associated protein that participates in chromosome alignment in mouse oocytes. Int. J. Mol. Sci. 22: 4841.
3. Neely, A.E., et al. 2023. NUP98 and RAE1 sustain progenitor function through HDAC-dependent chromatin targeting to escape from nucleolar localization. Commun. Biol. 6: 664.

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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