SANTA CRUZ BIOTECHNOLOGY, INC.

Rent1 (C-6): sc-393594

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

In eukaryotes, it is essential to have the ability to detect and degrade transcripts that lack full coding potential. Nonsense-mediated RNA decay (NMD) protects the organism by avoiding the translation of truncated peptides with dominant negative or deleterious gain-of-function potential. Rent1, a mammalian ortholog of Upflp, is essential for embryonic viability. Rent1 (also designated regulator of nonsense transcripts and HUpf1) contains an N-terminal zinc finger-like domain, NTPase domains and a region comprised of domains that define Rent1 as a superfamily group I helicase. Rent1 protein has nucleic-acid-dependent ATPase activity and 5' to 3' helicase activity. In addition, Rent1 is an RNA-binding protein whose activity is modulated by ATP and directly interacts with Rent2, which is a mammalian homolog of Upf2p. Two mammalian orthologs to Upf3p, Rent3a and Rent3b, are encoded by two separate genes. Rent3b (also known as Rent3X) is encoded by a X-linked gene and localizes primarily to the nucleus, while Rent1 and Rent2 localize primarily in the cytoplasm. Specific Rent3 protein interactions with Y14 and spliced mRNA suggest Rent3a and Rent3b serve as a link between splicing and NMD in the cytoplasm.

CHROMOSOMAL LOCATION

Genetic locus: UPF1 (human) mapping to 19p13.11; Upf1 (mouse) mapping to 8 B3.3.

SOURCE

Rent1 (C-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 77-101 near the N-terminus of Rent1 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.

Rent1 (C-6) is available conjugated to agarose (sc-393594 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393594 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393594 PE), fluorescein (sc-393594 FITC), Alexa Fluor® 488 (sc-393594 AF488), Alexa Fluor® 546 (sc-393594 AF546), Alexa Fluor® 594 (sc-393594 AF594) or Alexa Fluor® 647 (sc-393594 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393594 AF680) or Alexa Fluor® 790 (sc-393594 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-393594 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

Rent1 (C-6) is recommended for detection of Rent1 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).

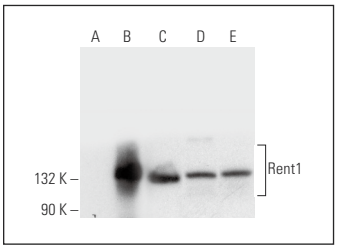
Rent1 (C-6) is also recommended for detection of Rent1 in additional species, including equine, canine and bovine.

Suitable for use as control antibody for Rent1 siRNA (h): sc-38223, Rent1 siRNA (m): sc-38224, Rent1 shRNA Plasmid (h): sc-38223-SH, Rent1 shRNA Plasmid (m): sc-38224-SH, Rent1 shRNA (h) Lentiviral Particles: sc-38223-V and Rent1 shRNA (m) Lentiviral Particles: sc-38224-V.

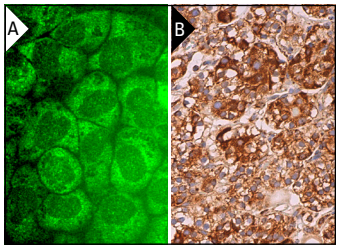
Molecular Weight of Rent1: 130 kDa.

Positive Controls: Rent1 (h): 293T Lysate: sc-115858, SH-SY5Y cell lysate: sc-3812 or HeLa whole cell lysate: sc-2200.

DATA



Rent1 (C-6): sc-393594. Western blot analysis of Rent1 expression in non-transfected 293T: sc-117752 (**A**), human Rent1 transfected 293T: sc-115858 (**B**), Sol8 (**C**), SH-SY5Y (**D**) and HeLa (**E**) whole cell lysates.



Rent1 (C-6): sc-393594. Immunofluorescence staining of formalin-fixed A-431 cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human parathyroid gland tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Rigalli, J.P., et al. 2018. Human papilloma virus (HPV) 18 proteins E6 and E7 up-regulate ABC transporters in oropharyngeal carcinoma. Involvement of the nonsense-mediated decay (NMD) pathway. Cancer Lett. 428: 69-76.
2. Fischer, J.W., et al. 2020. Structure-mediated RNA decay by UPF1 and G3BP1. Mol. Cell 78: 70-84.e6.
3. Zhu, X., et al. 2020. Ribosome recycling by ABCE1 links lysosomal function and iron homeostasis to 3' UTR-directed regulation and nonsense-mediated decay. Cell Rep. 32: 107895.
4. Ngo, G.H.P., et al. 2021. UPF1 promotes the formation of R loops to stimulate DNA double-strand break repair. Nat. Commun. 12: 3849.

RESEARCH USE

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