SANTA CRUZ BIOTECHNOLOGY, INC.

RNase HII-A (G-10): sc-515475

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The RNase HII complex is an endonuclease that degrades RNA found in RNA:DNA duplexes and is composed of one catalytic subunit and two non-catalytic subunits. RNase HII-A, also called RNASEH2A (Ribonuclease H2 subunit A), RNASEHI, AGS4 or RNHIA, is the 299 amino acid catalytic subunit of RNase HII. Localized to the nucleus, RNase HII-A mediates the removal of Okazaki fragment RNA primers that are present on the lagging strand during DNA replication. RNase HII-A catalyzes the endonucleolytic cleavage of RNA to a 5'-phosphomonoester and is able to bind magnesium or manganese as cofactors. Defects in the gene encoding RNase HII-A are the cause of Aicardi-Goutieres syndrome type 4 (AGS4), an autosomal recessive encephalopathy characterized by cerebral atrophy, leukodystrophy, intracranial calcifications and chronic cerebrospinal fluid (CSF) lymphocytosis. Patients affected by AGS4 have severe neurological dysfunctions and often die in early childhood.

CHROMOSOMAL LOCATION

Genetic locus: RNASEH2A (human) mapping to 19p13.2.

SOURCE

RNase HII-A (G-10) is a mouse monoclonal antibody raised against amino acids 1-299 representing full length RNase HII-A 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.

RNase HII-A (G-10) is available conjugated to agarose (sc-515475 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-515475 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515475 PE), fluorescein (sc-515475 FITC), Alexa Fluor® 488 (sc-515475 AF488), Alexa Fluor® 546 (sc-515475 AF546), Alexa Fluor® 594 (sc-515475 AF594) or Alexa Fluor® 647 (sc-515475 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515475 AF680) or Alexa Fluor® 790 (sc-515475 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

RNase HII-A (G-10) is recommended for detection of RNase HII-A of 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 RNase HII-A siRNA (h): sc-62954, RNase HII-A shRNA Plasmid (h): sc-62954-SH and RNase HII-A shRNA (h) Lentiviral Particles: sc-62954-V.

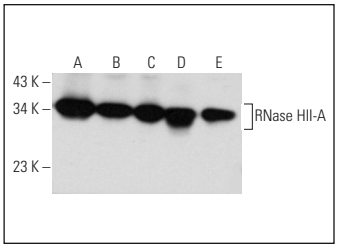
Molecular Weight of RNase HII-A: 33 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, U-251-MG whole cell lysate: sc-364176 or HeLa nuclear extract: sc-2120.

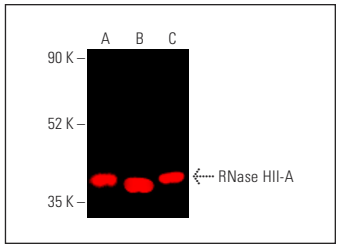
RECOMMENDED SUPPORT REAGENTS

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



RNase HII-A (G-10): sc-515475. Western blot analysis of RNase HII-A expression in Jurkat (**A**), U-251-MG (**B**), COLO 320HSR (**C**) and MES-SA/Dx5 (**D**) whole cell lysates and HeLa nuclear extract (**E**).



RNase HII-A (G-10): sc-515475. Near-Infrared western blot analysis of RNase HII-A expression in K-562 (**A**), THP-1 (**B**) and Hep G2 (**C**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG_1 BP-CFL 790: sc-533666.

SELECT PRODUCT CITATIONS

1. Zimmermann, M., et al. 2018. CRISPR screens identify genomic ribonucleotides as a source of PARP-trapping lesions. Nature 559: 285-289.
2. Benitez-Guijarro, M., et al. 2018. RNase H2, mutated in Aicardi-Goutières syndrome, promotes LINE-1 retrotransposition. EMBO J. 37: e98506.
3. Madan, E., et al. 2019. HIF-transcribed p53 chaperones HIF-1α. Nucleic Acids Res. 47: 10212-10234.
4. Tsukiashi, M., et al. 2019. Construction and characterization of ribonuclease H2 knockout NIH/3T3 cells. J. Biochem. 165: 249-256.
5. Reijns, M.A.M., et al. 2022. Signatures of TOP1 transcription-associated mutagenesis in cancer and germline. Nature 602: 623-631.
6. Zimmermann, M., et al. 2022. Guiding ATR and PARP inhibitor combinationswith chemogenomic screens. Cell Rep. 40: 111081.

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.