SANTA CRUZ BIOTECHNOLOGY, INC.

RNase III Drosha (C-7): sc-393591

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The ribonuclease III superfamily represents a structurally distinct group of double-strand-specific endonucleases with essential roles in RNA maturation, RNA decay, and gene silencing. Initial cleavage of microRNAs is catalysed by Drosha, a nuclease of the RNase III family, which acts on primary miRNA transcripts (pri-miRNAs) in the nucleus. Human Drosha is a component of two multi-protein complexes. The larger complex contains multiple classes of RNA-associated proteins including RNA helicases, proteins that bind double-stranded RNA, novel heterogeneous nuclear ribonucleoproteins and the Ewing's sarcoma family of proteins. The smaller complex is composed of Drosha and the double-stranded-RNA-binding protein, DGCR8.

CHROMOSOMAL LOCATION

Genetic locus: DROSHA (human) mapping to 5p13.3; Drosha (mouse) mapping to 15 A1.

SOURCE

RNase III Drosha (C-7) is a mouse monoclonal antibody raised against amino acids 1071-1370 mapping at the C-terminus of RNase III 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 III Drosha (C-7) is available conjugated to agarose (sc-393591 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393591 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393591 PE), fluorescein (sc-393591 FITC), Alexa Fluor® 488 (sc-393591 AF488), Alexa Fluor® 546 (sc-393591 AF546), Alexa Fluor® 594 (sc-393591 AF594) or Alexa Fluor® 647 (sc-393591 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393591 AF680) or Alexa Fluor® 790 (sc-393591 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

RNase III Drosha (C-7) is recommended for detection of RNase III Drosha isoforms 1 and 2 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 RNase III Drosha siRNA (h): sc-44080, RNase III Drosha siRNA (m): sc-44812, RNase III Drosha shRNA Plasmid (h): sc-44080-SH, RNase III Drosha shRNA Plasmid (m): sc-44812-SH, RNase III Drosha shRNA (h) Lentiviral Particles: sc-44080-V and RNase III Drosha shRNA (m) Lentiviral Particles: sc-44812-V.

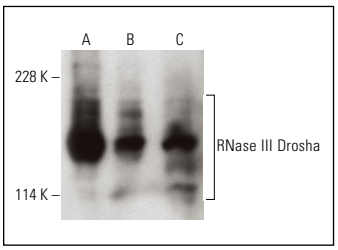
Molecular Weight of RNase III Drosha: 160 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, NIH/3T3 whole cell lysate: sc-2210 or Hep G2 cell lysate: sc-2227.

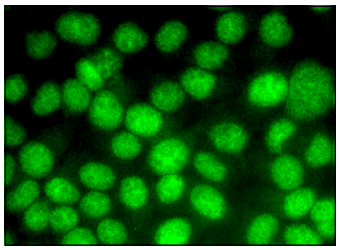
STORAGE

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

DATA



RNase III Drosha (C-7) HRP: sc-393591 HRP. Direct western blot analysis of RNase III Drosha expression in HeLa nuclear extract (**A**) and NIH/3T3 (**B**) and Hep G2 (**C**) whole cell lysates.



RNase III Drosha (C-7): sc-393591. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Stathopoulou, A., et al. 2017. A novel requirement for DROSHA in maintenance of mammalian CG methylation. Nucleic Acids Res. 45: 9398-9412.
2. Sheng, W., et al. 2018. LSD1 ablation stimulates anti-tumor immunity and enables checkpoint blockade. Cell 174: 549-563.e19.
3. Holzer, K., et al. 2019. Nucleoporin Nup155 is part of the p53 network in liver cancer. Nat. Commun. 10: 2147.
4. Lam, B., et al. 2021. High glucose treatment limits Drosha protein expression and alters angiomiR maturation in microvascular primary endothelial cells via an Mdm2-dependent mechanism. Cells 10: 742.
5. Cui, Y., et al. 2021. Global miRNA dosage control of embryonic germ layer specification. Nature 593: 602-606.
6. Xu, H., et al. 2021. p38 MAPK-mediated loss of nuclear RNase III enzyme Drosha underlies Amyloid β-induced neuronal stress in Alzheimer's disease. Aging Cell 20: e13434.
7. Gao, J., et al. 2021. Merkel cell polyomavirus T-antigens regulate DICER1 mRNA stability and translation through HSC70. iScience 24: 103264.
8. Gu, M., et al. 2023. Suppression of RBFox2 by multiple miRNAs in pressure overload-induced heart failure. Int. J. Mol. Sci. 24: 1283.
9. Sako, H., et al. 2023. MicroRNAs slow translating ribosomes to prevent protein misfolding in eukaryotes. EMBO J. 42: e112469.
10. Li, Y., et al. 2023. The ubiquitin-specific protease USP36 associates with the microprocessor complex and regulates miRNA biogenesis by SUMOylating DGCR8. Cancer Res. Commun. 3: 459-470.
11. Dai, Y., et al. 2024. Increased viral tolerance mediates by antiviral RNA interference in bat cells. Cell Rep. 43: 114581.

RESEARCH USE

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