RNase L (E-9): sc-74405

SANTA CRUZ®
BIOTECHNOLOGY

The Power to Question

BACKGROUND

RNase L encodes a component of the interferon-regulated 2-5A system that functions in the antiviral and antiproliferative roles of interferons. Mutations in this gene have been associated with predisposition to prostate cancer and this gene is a candidate for the hereditary prostate cancer 1 (HPC-1) allele. Interferon treatment enhances levels of both RNase L and a group of synthetases that produce 5'-triphosphorylated, 2',5'-oligoadenylates (2-5A) from ATP. The role of the 2-5A system in the control of viral and cellular growth suggests that defects in the 2-5A-dependent RNase gene could result in reduced immunity to virus infections and cancer.

CHROMOSOMAL LOCATION

Genetic locus: RNASEL (human) mapping to 1q25.3; Rnasel (mouse) mapping to 1 G3.

SOURCE

RNase L (E-9) is a mouse monoclonal antibody raised against amino acids 442-741 mapping at the C-terminus of RNase L 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.

RNase L (E-9) is available conjugated to agarose (sc-74405 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-74405 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-74405 PE), fluorescein (sc-74405 FITC), Alexa Fluor® 488 (sc-74405 AF488), Alexa Fluor® 546 (sc-74405 AF546), Alexa Fluor® 594 (sc-74405 AF594) or Alexa Fluor® 647 (sc-74405 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-74405 AF680) or Alexa Fluor® 790 (sc-74405 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

RNase L (E-9) is recommended for detection of RNase L 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 RNase L siRNA (h): sc-45965, RNase L siRNA (m): sc-45966, RNase L shRNA Plasmid (h): sc-45965-SH, RNase L shRNA Plasmid (m): sc-45966-SH, RNase L shRNA (h) Lentiviral Particles: sc-45965-V and RNase L shRNA (m) Lentiviral Particles: sc-45966-V.

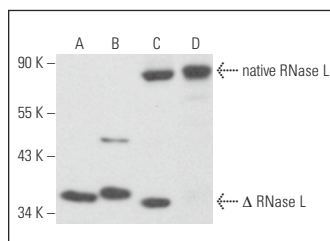Molecular Weight of native RNase L: 83 kDa.

Molecular Weight of truncated RNase L: 37 kDa.

Positive Controls: F9 cell lysate: sc-2245, A-431 whole cell lysate: sc-2201 or PC-3 cell lysate: sc-2220.
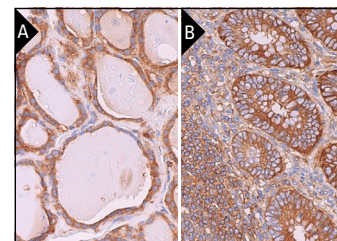
STORAGE

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

DATA

RNase L (E-9): sc-74405. Western blot analysis of RNase L expression in PC-3 (**A**), F9 (**B**), A-431 (**C**) and ZR-75-1 (**D**) whole cell lysates.

RNase L (E-9): sc-74405. Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid glands tissue showing cytoplasmic staining of glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing cytoplasmic staining of glandular cells and lymphoid cells (**B**).

SELECT PRODUCT CITATIONS

1. Chen, L.L., et al. 2010. Molecular basis for an attenuated cytoplasmic dsRNA response in human embryonic stem cells. Cell Cycle 9: 3552-3564.

2. Costales, M.G., et al. 2019. Targeted degradation of a hypoxia-associated non-coding RNA enhances the selectivity of a small molecule interacting with RNA. Cell Chem. Biol. 26: 1180-1186.e5.

3. Zhong, Y., et al. 2019. RNase L facilitates the repair of DNA double-strand breaks through the nonhomologous end-joining pathway. FEBS Lett. 593: 1190-1200.

4. Bauernfried, S., et al. 2021. Human NLRP1 is a sensor for double-stranded RNA. Science 371: eabd0811.

5. Zhao, M., et al. 2022. Interferon inducible porcine 2', 5'-oligoadenylate synthetase like-1 protein limits porcine reproductive and respiratory syndrome virus 2 infection via the MDA5-mediated interferon-signaling pathway. Int. Immunopharmacol. 111: 109151.

6. Dolliver, S.M., et al. 2022. Nsp1 proteins of human coronaviruses HCoV-OC43 and SARS-CoV2 inhibit stress granule formation. PLoS Pathog. 18: e1011041.

7. Paget, M., et al. 2023. Stress granules are shock absorbers that prevent excessive innate immune responses to dsRNA. Mol. Cell 83: 1180-1196.e8.

8. Grabowski, F., et al. 2023. Antagonism between viral infection and innate immunity at the single-cell level. PLoS Pathog. 19: e1011597.

9. Szymanska, I., et al. 2024. Vaccinia virus F1L blocks the ribotoxic stress response to subvert ZAKα-dependent NLRP1 inflammasome activation. Eur. J. Immunol. 54: e2451135.

RESEARCH USE

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