SANTA CRUZ BIOTECHNOLOGY, INC.

RNase III Drosha (H-300): sc-33778

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 catalyzed 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.

REFERENCES

1. Sun, W., et al. 2004. Mutational analysis of the nuclease domain of *Escherichia coli* ribonuclease III. Identification of conserved acidic residues that are important for catalytic function *in vitro*. Biochemistry 43: 13054-13062.
2. Landthaler, M., et al. 2004. The human DiGeorge syndrome critical region gene 8 and its *Drosophila melanogaster* homolog are required for miRNA biogenesis. Curr. Biol. 14: 2162-2167.
3. Han, J., et al. 2004. The Drosha-DGCR8 complex in primary microRNA processing. Genes Dev. 18: 3016-3027.
4. Denli, A.M., et al. 2004. Processing of primary microRNAs by the Microprocessor complex. Nature 432: 231-235.
5. Gregory, R.I., et al. 2004. The Microprocessor complex mediates the genesis of microRNAs. Nature 432: 235-240.
6. Tomari, Y., et al. 2005. MicroRNA biogenesis: Drosha can't cut it without a partner. Curr. Biol. 15: R61-R64.
7. Zeng, Y., et al. 2005. Recognition and cleavage of primary microRNA precursors by the nuclear processing enzyme Drosha. EMBO J. 24: 138-148.

CHROMOSOMAL LOCATION

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

SOURCE

RNase III Drosha (H-300) is a rabbit polyclonal 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 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

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.

APPLICATIONS

RNase III Drosha (H-300) is recommended for detection of RNase III Drosha isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

RNase III Drosha (H-300) is also recommended for detection of RNase III Drosha isoforms 1 and 2 in additional species, including equine, canine, bovine and avian.

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.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Yamagata, K., et al. 2009. Maturation of microRNA is hormonally regulated by a nuclear receptor. Mol. Cell 36: 340-347.
2. Di Leva, G., et al. 2010. MicroRNA cluster 221-222 and estrogen receptor α interactions in breast cancer. J. Natl. Cancer Inst. 102: 706-721.
3. Tang, X., et al. 2010. Phosphorylation of the RNase III enzyme Drosha at Serine300 or Serine302 is required for its nuclear localization. Nucleic Acids Res. 38: 6610-6619.

PROTOCOLS

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