SANTA CRUZ BIOTECHNOLOGY, INC.

RNF123 (267.1): sc-101122

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The Power to Question

BACKGROUND

The RING-type zinc-finger motif is present in a number of viral and eukaryotic proteins and is made of a conserved cysteine-rich domain that is able to bind two zinc atoms. Proteins that contain this conserved domain are generally involved in protein-protein interactions and protein-DNA interactions. RNF123 (RING-finger protein 123), also known as KPC1 (Kip1 (p27) ubiquitination-promoting complex protein 1) or FP1477, contains one RING-type zinc-finger domain and one SPRY domain. Localizing to the cytoplasm, RNF123 functions as the catalytic component of the KPC complex that acts as an E3 ubiquitin-protein ligase. Specifically, RNF123 is essential for the ubiquitination and subsequent degradation of p27 during the cell cycle G_1 phase. Via its N-terminus, RNF123 is known to interact with GBDR1 (another component of the KPC) and p27 (a cyclin-dependent kinase inhibitor). Due to alternative splicing events, two isoforms exist for RNF123.

REFERENCES

1. Kamura, T., et al. 2004. Cytoplasmic ubiquitin ligase KPC regulates proteolysis of p27 Kip1 at G_1 phase. Nat. Cell Biol. 6: 1229-1235.
2. Hara, T., et al. 2005. Role of the UBL-UBA protein KPC2 in degradation of p27 at G_1 phase of the cell cycle. Mol. Cell. Biol. 25: 9292-9303.

CHROMOSOMAL LOCATION

Genetic locus: RNF123 (human) mapping to 3p21.31.

SOURCE

RNF123 (267.1) is a mouse monoclonal antibody raised against recombinant RNF123 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain 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.

APPLICATIONS

RNF123 (267.1) is recommended for detection of RNF123 of 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for RNF123 siRNA (h): sc-78247, RNF123 shRNA Plasmid (h): sc-78247-SH and RNF123 shRNA (h) Lentiviral Particles: sc-78247-V.

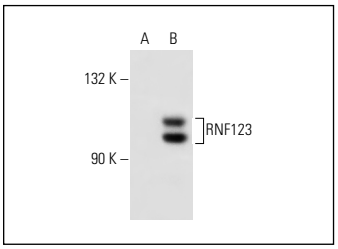
Molecular Weight of RNF123: 140 kDa.

Positive Controls: RNF123 (h): 293T Lysate: sc-116360 or HeLa whole cell lysate: sc-2200.

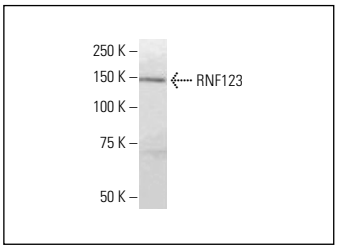
RECOMMENDED SUPPORT REAGENTS

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).

DATA



RNF123 (267.1): sc-101122. Western blot analysis of RNF123 expression in non-transfected: sc-117752 (**A**) and human RNF123 transfected: sc-116360 (**B**) 293T whole cell lysates.



RNF123 (267.1): sc-101122. Western blot analysis of RNF123 expression in HeLa whole cell lysate.

SELECT PRODUCT CITATIONS

1. Hristova, N.R., et al. 2013. Notch1-dependent regulation of p27 determines cell fate in colorectal cancer. Int. J. Oncol. 43: 1967-1975.
2. Khanna, R., et al. 2018. E3 ubiquitin ligase RNF123 targets lamin B1 and lamin-binding proteins. FEBS J. 285: 2243-2262.
3. Yuan, Y., et al. 2019. KPC1 alleviates hypoxia/reoxygenation-induced apoptosis in rat cardiomyocyte cells though BAX degradation. J. Cell. Physiol. 234: 22921-22934.
4. Wu, D., et al. 2020. A novel mitochondrial amidoxime reducing component 2 is a favorable indicator of cancer and suppresses the progression of hepatocellular carcinoma by regulating the expression of p27. Oncogene 39: 6099-6112.
5. Sun, M., et al. 2021. Cyclin G2 upregulation impairs migration, invasion, and network formation through RNF123/Dvl2/JNK signaling in the trophoblast cell line HTR8/SVneo, a possible role in preeclampsia. FASEB J. 35: e21169.
6. Peng, H.H., et al. 2022. ACK1 upregulated the proliferation of head and neck squamous cell carcinoma cells by promoting p27 phosphorylation and degradation. J. Cell Commun. Signal. 16: 567-578.
7. Li, H., et al. 2024. Human cytomegalovirus degrades DMXL1 to inhibit autophagy, lysosomal acidification, and viral assembly. Cell Host Microbe 32: 466-478.e11.

RESEARCH USE

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