SANTA CRUZ BIOTECHNOLOGY, INC.

XRN2 (H-3): sc-365258

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Degradation of mRNA is a critical aspect of gene expression that occurs via the exoribonuclease. Exoribonuclease 2 (XRN2) is the human homologue of the *Saccharomyces cerevisiae* RAT1, which functions as a nuclear 5' to 3' exoribonuclease and is essential for mRNA turnover and cell viability. XRN2 also processes rRNAs and small nucleolar RNAs (snoRNAs) in the nucleus. XRN2 moves along with RNA polymerase II and gains access to the nascent RNA transcript after the endonucleolytic cleavage at the poly(A) site or at a second cotranscriptional cleavage site (CoTC). CoTC is an autocatalytic RNA structure that undergoes rapid self-cleavage and acts as a precursor to termination by presenting a free RNA 5' end to be recognized by XRN2. XRN2 then travels in a 5'-3' direction like a guided torpedo and facilitates the dissociation of the RNA polymerase elongation complex.

CHROMOSOMAL LOCATION

Genetic locus: XRN2 (human) mapping to 20p11.23; Xrn2 (mouse) mapping to 2 G2.

SOURCE

XRN2 (H-3) is a mouse monoclonal antibody raised against amino acids 651-950 mapping at the C-terminus of XRN2 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.

XRN2 (H-3) is available conjugated to agarose (sc-365258 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365258 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365258 PE), fluorescein (sc-365258 FITC), Alexa Fluor® 488 (sc-365258 AF488), Alexa Fluor® 546 (sc-365258 AF546), Alexa Fluor® 594 (sc-365258 AF594) or Alexa Fluor® 647 (sc-365258 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365258 AF680) or Alexa Fluor® 790 (sc-365258 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

XRN2 (H-3) is recommended for detection of XRN2 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 XRN2 siRNA (h): sc-61813, XRN2 siRNA (m): sc-61814, XRN2 shRNA Plasmid (h): sc-61813-SH, XRN2 shRNA Plasmid (m): sc-61814-SH, XRN2 shRNA (h) Lentiviral Particles: sc-61813-V and XRN2 shRNA (m) Lentiviral Particles: sc-61814-V.

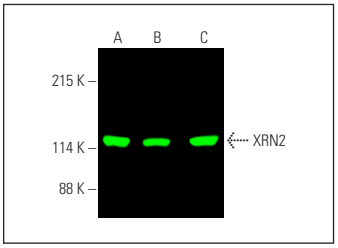
Molecular Weight of XRN2: 117 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, NTERA-2 cl.D1 whole cell lysate: sc-364181 or PC-3 nuclear extract: sc-2152.

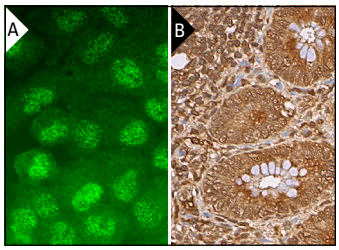
STORAGE

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

DATA



XRN2 (H-3): sc-365258. Near-infrared western blot analysis of XRN2 expression in PC-3 nuclear extract (**A**) and HeLa (**B**) and NTERA-2 cl.D1 (**C**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



XRN2 (H-3): sc-365258. Immunofluorescence staining of formalin-fixed A-431 cells showing nuclear and aggresome localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing nuclear and cytoplasmic staining of glandular cells and nuclear staining of Lymphoid cells (**B**).

SELECT PRODUCT CITATIONS

1. Liang, X.H., et al. 2017. RNase H1-dependent antisense oligonucleotides are robustly active in directing RNA cleavage in both the cytoplasm and the nucleus. Mol. Ther. 25: 2075-2092.
2. Szczesny, R.J., et al. 2018. Versatile approach for functional analysis of human proteins and efficient stable cell line generation using FLP-mediated recombination system. PLoS ONE 13: e0194887.
3. He, X., et al. 2019. MROH7-TTC4 read-through lncRNA suppresses vascular endothelial cell apoptosis and is upregulated by inhibition of ANXA7 GTPase activity. FEBS J. 286: 4937-4950.
4. Patidar, P.L., et al. 2020. XRN2 interactome reveals its synthetic lethal relationship with PARP1 inhibition. Sci. Rep. 10: 14253.
5. Narain, A., et al. 2021. Targeted protein degradation reveals a direct role of SPT6 in RNAPII elongation and termination. Mol. Cell 81: 3110-3127.e14.
6. Gerassimovich, Y.A., et al. 2021. Proximity-dependent biotinylation detects associations between SARS coronavirus nonstructural protein 1 and stress granule-associated proteins. J. Biol. Chem. 297: 101399.
7. Balaratnam, S., et al. 2022. Decay of piwi-interacting RNAs in human cells is primarily mediated by 5' to 3' exoribonucleases. ACS Chem. Biol. 17: 1723-1732.
8. Reiss, M., et al. 2023. The exoribonuclease XRN2 mediates degradation of the long non-coding telomeric RNA TERRA. FEBS Lett. 597: 1818-1836.
9. Viera, T., et al. 2024. Molecular basis of XRN2-deficient cancer cell sensitivity to poly(ADP-ribose) polymerase inhibition. Cancers 16: 595.
10. Yang, B.Z., et al. 2024. DHX9 SUMOylation is required for the suppression of R-loop-associated genome instability. Nat. Commun. 15: 6009.

RESEARCH USE

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