SANTA CRUZ BIOTECHNOLOGY, INC.

Exo1 (266): sc-56092

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The Power to Question

BACKGROUND

Comparative evaluation of the expression patterns of the human and mouse genes, combined with previous biochemical and yeast genetic studies, indicate that the Exo1 (exonuclease I) proteins are important contributors to chromosome processing during mammalian DNA repair and recombination. In mice, the Exo1 gene maps to distal chromosome 1, consistent with the recent mapping of the orthologous human HEX1/Exo1 gene to chromosome 1q43. Exo1 is expressed prominently in testis, an area of active homologous recombination, and spleen, a prominent lymphoid tissue. In both mammalian and yeast systems, Exo1 is a 5'-3' double stranded DNA exonuclease that has previously been implicated in DNA mismatch repair (MMR). The MMR system ensures genome integrity by removing mispaired and unpaired bases that originate during replication. In humans, Exo1 interacts with MSH2 and MLH1 and has been proposed to be a redundant exonuclease in MMR. In both mammalian and yeast systems, Exo1 plays a structural role in MMR and stabilizes multiprotein complexes containing a number of MMR proteins.

REFERENCES

1. Lee, B.I., et al. 1999. Expression specificity of the mouse exonuclease 1 (mExo1) gene. Nucleic Acids Res. 27: 4114-4120.
2. Kirkpatrick, D.T., et al. 2000. Decreased meiotic intergenic recombination and increased meiosis I non-disjunction in Exo1 mutants of *Saccharomyces cerevisiae*. Genetics 156: 1549-1557.
3. Tran, P.T., et al. 2001. Interactions of Exo1p with components of MutLα in *Saccharomyces cerevisiae*. Proc. Natl. Acad. Sci. USA 98: 9760-9765.
4. Mansour, A.A., et al. 2001. Control of GT repeat stability in *Schizosaccharomyces pombe* by mismatch repair factors. Genetics 158: 77-85.
5. Amin, N.S., et al. 2001. Exo1-dependent mutator mutations: model system for studying functional interactions in mismatch repair. Mol. Cell. Biol. 21: 5142-5155.
6. Tran, P.T., et al. 2004. Exo1—a multi-tasking eukaryotic nuclease. DNA Repair 3: 1549-1559.
7. Barber, L.J., et al. 2005. DNA interstrand cross-link repair in the *Saccharomyces cerevisiae* cell cycle: overlapping roles for PSO2 (SNM1) with MutS factors and Exo1 during S phase. Mol. Cell. Biol. 25: 2297-2309.
8. Cotta-Ramusino, C., et al. 2005. Exo1 processes stalled replication forks and counteracts fork reversal in checkpoint-defective cells. Mol. Cell 17: 153-159.
9. Yamamoto, H., et al. 2005. Single nucleotide polymorphisms in the Exo1 gene and risk of colorectal cancer in a Japanese population. Carcinogenesis 26: 411-416.

CHROMOSOMAL LOCATION

Genetic locus: EXO1 (human) mapping to 1q43; Exo1 (mouse) mapping to 1 H4.

SOURCE

Exo1 (266) is a mouse monoclonal antibody raised against full length Exo1 of mouse origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin and 0.1% stabilizer protein.

APPLICATIONS

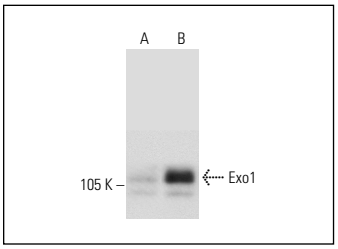
Exo1 (266) is recommended for detection of Exo1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Exo1 siRNA (h): sc-44880, Exo1 siRNA (m): sc-44881, Exo1 shRNA Plasmid (h): sc-44880-SH, Exo1 shRNA Plasmid (m): sc-44881-SH, Exo1 shRNA (h) Lentiviral Particles: sc-44880-V and Exo1 shRNA (m) Lentiviral Particles: sc-44881-V.

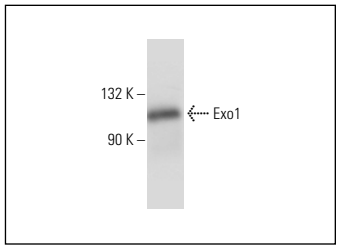
Molecular Weight of Exo1: 92 kDa.

Positive Controls: Exo1 (h): 293T Lysate: sc-171270 or mouse testis extract: sc-2405.

DATA



Exo1 (266): sc-56092. Western blot analysis of Exo1 expression in non-transfected: sc-117752 (**A**) and human Exo1 transfected: sc-171270 (**B**) 293T whole cell lysates.



Exo1 (266): sc-56092. Western blot analysis of Exo1 expression in mouse testis tissue extract.

SELECT PRODUCT CITATIONS

1. Thakar, T., et al. 2020. Ubiquitinated-PCNA protects replication forks from DNA2-mediated degradation by regulating Okazaki fragment maturation and chromatin assembly. Nat. Commun. 11: 2147.
2. Silva, B., et al. 2021. TERRA transcription destabilizes telomere integrity to initiate break-induced replication in human ALT cells. Nat. Commun. 12: 3760.
3. Dhoonmoon, A., et al. 2022. The KU-PARP14 axis differentially regulates DNA resection at stalled replication forks by MRE11 and EXO1. Nat. Commun. 13: 5063.

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.