SANTA CRUZ BIOTECHNOLOGY, INC.

RHINO siRNA (h): sc-95847

BACKGROUND

DNA damage or incomplete replication of DNA results in the inhibition of cell cycle progression at the G_1 to S or G_2 to M phase checkpoints by conserved regulatory mechanisms. RHINO (RAD9-HUS1-RAD1 interacting nuclear orphan 1), also known as RHNO1, C12orf32 or HKMT1188, is a 238 amino acid protein that plays a central role in DNA damage response and in cell cycle regulation. Strongly expressed in breast cancer cells and weakly expressed in testis, prostate, ovary, thymus and small intestine, RHINO is recruited to DNA damaged sites through interaction with 9-1-1 cell-cycle checkpoint response complex and ATR activator TopBP1. RHINO is required for cell cycle progression, specifically during G_1 to S phase transition. RHINO exists as two alternatively spliced isoforms and is encoded by a gene located on human chromosome 12p13.33.

REFERENCES

1. Scherer, S.E., et al. 2006. The finished DNA sequence of human chromosome 12. Nature 440: 346-351.
2. Matsuoka, S., et al. 2007. ATM and ATR substrate analysis reveals extensive protein networks responsive to DNA damage. Science 316: 1160-1166.
3. Kim, J.W., et al. 2010. Involvement of C12orf32 overexpression in breast carcinogenesis. Int. J. Oncol. 37: 861-867.
4. Cotta-Ramusino, C., et al. 2011. A DNA damage response screen identifies RHINO, a 9-1-1 and TopBP1 interacting protein required for ATR signaling. Science 332: 1313-1317.
5. Heikkinen, T., et al. 2014. Evaluation of the RHINO gene for breast cancer predisposition in Finnish breast cancer families. Breast Cancer Res. Treat. 144: 437-441.
6. Lindsey-Boltz, L.A., et al. 2015. RHINO forms a stoichiometric complex with the 9-1-1 checkpoint clamp and mediates ATR-Chk1 signaling. Cell Cycle 14: 99-108.
7. SWISS-PROT/TrEMBL (Q9BSD3). World Wide Web URL: http://www.uniprot.org

CHROMOSOMAL LOCATION

Genetic locus: RHNO1 (human) mapping to 12p13.33.

PRODUCT

RHNO1 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RHNO1 shRNA Plasmid (h): sc-95847-SH and RHNO1 shRNA (h) Lentiviral Particles: sc-95847-V as alternate gene silencing products.

For independent verification of RHNO1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-95847A, sc-95847B and sc-95847C.

RESEARCH USE

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

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

RHINO siRNA (h) is recommended for the inhibition of RHINO expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor RHINO gene expression knockdown using RT-PCR Primer: RHINO (h)-PR: sc-95847-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lindsey-Boltz, L.A., et al. 2015. RHINO forms a stoichiometric complex with the 9-1-1 checkpoint clamp and mediates ATR-Chk1 signaling. Cell Cycle 14: 99-108.

PROTOCOLS

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