SANTA CRUZ BIOTECHNOLOGY, INC.

Rad21 siRNA (m): sc-72050

BACKGROUND

Rad21 is one of the major cohesin subunits that holds sister chromatids together until anaphase, when proteolytic cleavage by separase, a caspase-like enzyme, allows chromosomal separation. Rad21 interacts with Rec8 to form a cohesin complex that functions in sister chromatid alignment. Rad21 is also involved in the repair of double-strand breaks in DNA and is essential for mitotic growth. Rad21 undergoes a C-terminal cleavage induced by diverse stimuli right before apoptosis. The cleavage product migrates to the cytoplasm and is involved in early events in the apoptotic pathway and it amplifiies the cell death signal in a positive-feedback manner. The Rad21 gene is related to the invasion and metastasis of cancer cells, and Rad21 is a potential target for cancer therapeutics that may enhance the anti-tumor activity of chemotherapeutic agents acting through the induction of DNA damage.

REFERENCES

1. Sook Kim, M., et al. 2001. Human Rad21 gene, hHR21(SP), is downregulated by hypoxia in human tumor cells. Biochem. Biophys. Res. Commun. 281: 1106-1112.
2. Lee, J., et al. 2002. Analyses of mRNA expression patterns of cohesin subunits Rad21 and Rec8 in mice: germ cell-specific expression of Rec8 mRNA in both male and female mice. Zoo. Sci. 19: 539-544.
3. Pati, D., et al. 2002. Linking sister chromatid cohesion and apoptosis: role of Rad21. Mol. Cell. Biol. 22: 8267-8277.
4. Prieto, I., et al. 2002. STAG2 and Rad21 mammalian mitotic cohesins are implicated in meiosis. EMBO Rep. 3: 543-550.
5. Parra, M.T., et al. 2004. Involvement of the cohesin Rad21 and SCP3 in monopolar attachment of sister kinetochores during mouse meiosis I. J. Cell Sci. 117: 1221-1234.

CHROMOSOMAL LOCATION

Genetic locus: Rad21 (mouse) mapping to 15 C.

PRODUCT

Rad21 siRNA (m) 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 Rad21 shRNA Plasmid (m): sc-72050-SH and Rad21 shRNA (m) Lentiviral Particles: sc-72050-V as alternate gene silencing products.

For independent verification of Rad21 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-72050A, sc-72050B and sc-72050C.

PROTOCOLS

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

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

Rad21 siRNA (m) is recommended for the inhibition of Rad21 expression in mouse 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 60 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.

GENE EXPRESSION MONITORING

Rad21 (B-2): sc-271601 is recommended as a control antibody for monitoring of Rad21 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgM-HRP: sc-2064 (dilution range: 1:500-1:5,000), TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-mouse IgM-FITC: sc-2082 (dilution range: 1:100-1:400) or goat anti-mouse IgM-TR: sc-2983 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Rad21 gene expression knockdown using RT-PCR Primer: Rad21 (m)-PR: sc-72050-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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