SANTA CRUZ BIOTECHNOLOGY, INC.

Rad17 siRNA (m): sc-36359

BACKGROUND

DNA damage results in the arrest of cell cycle progression, allowing the damaged DNA to be repaired prior to replication. Checkpoints exist at several cell cycle phase transitions to maintain this genetic integrity. Rad9, Rad17, Rad24 and Mec3 are involved in activating the G_1 and G_2 checkpoints. Pol2 (also known as Dun2), encoding the catalytic subunit of DNA polymerase epsilon, plays a role in activating the S phase checkpoint. The protein kinase Rad53 (also designated Spk1, Mec2 or Sad1) is essential for both G_2 and S phase arrest. Activation of Rad53 is regulated by Mec1 (also known as Esr1 and Sad3), a homolog of the human ATM protein. Pds1 and Mad2 both regulate checkpoints associated with incomplete spindle replication. Dun1, another protein kinase, plays a role in transducing the DNA damage signal.

REFERENCES

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2. Zhou, Z., et al. 1993. Dun1 encodes a protein kinase that controls the DNA damage response in yeast. Cell 75: 1119-1127.
3. Aboussekhra, A., et al. 1996. A novel role for the budding yeast Rad9 checkpoint gene in DNA damage-dependent transcription. EMBO J. 15: 3912-3922.
4. Siede, W., et al. 1996. Cloning and characterization of Rad17, a gene controlling cell cycle responses to DNA damage in *Saccharomyces cerevisiae*. Nucleic Acids Res. 24: 1669-1675.
5. Lydall, D., et al. 1996. A meiotic recombination checkpoint controlled by mitotic checkpoint genes. Nature 383: 840-843.
6. Longhese, M.P., et al. 1996. Yeast pep3/Mec3 mutants fail to delay entry into S phase and to slow DNA replication in response to DNA damage, and they define a functional link between Mec3 and DNA primase. Mol. Cell. Biol. 16: 3235-3244.
7. Navas, T.A., et al. 1996. Rad9 and DNA polymerase e form parallel sensory branches for transducing the DNA damage checkpoint signal in *Saccharomyces cerevisiae*. Genes Dev. 10: 2632-2643.
8. Sanchez, Y., et al. 1996. Regulation of Rad53 by the Atm-like kinases Mec1 and Tel1 in yeast cell cycle checkpoint pathways. Science 271: 357-360.
9. Yamamoto, A., et al. 1996. Pds1p, an inhibitor of anaphase in budding yeast, plays a critical role in the APC and checkpoint pathway(s). J. Cell Biol. 133: 99-110.

CHROMOSOMAL LOCATION

Genetic locus: Rad17 (mouse) mapping to 13 D1.

PROTOCOLS

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

PRODUCT

Rad17 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 Rad17 shRNA Plasmid (m): sc-36359-SH and Rad17 shRNA (m) Lentiviral Particles: sc-36359-V as alternate gene silencing products.

For independent verification of Rad17 (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-36359A, sc-36359B and sc-36359C.

PROTOCOLS

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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

Rad17 siRNA (m) is recommended for the inhibition of Rad17 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 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 Rad17 gene expression knockdown using RT-PCR Primer: Rad17 (m)-PR: sc-36359-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.