SANTA CRUZ BIOTECHNOLOGY, INC.

SMG6 siRNA (m): sc-61570

BACKGROUND

The eukaryotic nonsense-mediated mRNA decay (NMD) pathway is a post-transcriptional process that promotes rapid degradation of mRNAs containing premature stop codons (PTCs). In humans, NMD depends on RNA-dependent ATPase and 5'-to-3' helicase UPF1, plus six other proteins designated SMG1, SMG5, SMG6, SMG7, UPF2, and UPF3. SMG5, SMG7, and UPF1 localize to cytoplasmic foci called P-bodies, while SMG5, SMG6, and SMG7 target UPF1 for dephosphorylation. SMG5 is involved in nonsense-mediated mRNA decay, is necessary for TERT activity, and promotes dephosphorylation of RENT1. SMG6 is a component of the telomerase ribonucleoprotein (RNP) complex that is necessary for the replication of chromosome termini. It may also be involved in telomere regulation as it helps TERT elongate telomeres.

REFERENCES

1. Reichenbach, P., et al. 2003. A human homolog of yeast Est1 associates with telomerase and uncaps chromosome ends when overexpressed. Curr. Biol. 13: 568-574.
2. Snow, B.E., et al. 2003. Functional conservation of the telomerase protein Est1p in humans. Curr. Biol. 13: 698-704.
3. Ohnishi, T., et al. 2003. Phosphorylation of hUPF1 induces formation of mRNA surveillance complexes containing hSMG-5 and hSMG-7. Mol. Cell 12: 1187-1200.
4. Unterholzner, L., et al. 2004. SMG7 acts as a molecular link between mRNA surveillance and mRNA decay. Mol. Cell 16: 587-596.
5. Rehwinkel, J., et al. 2005. Nonsense-mediated mRNA decay factors a targets. RNA 11: 1530-1544.
6. Rehwinkel, J., et al. 2005. A crucial role for GW182 and the DCP1:DCP2 decapping complex in miRNA-mediated gene silencing. RNA 11: 1640-1647.
7. Fukuhara, N., et al. 2005. SMG7 is a 14-3-3-like adaptor in the nonsense-mediated mRNA decay pathway. Mol. Cell 17: 537-547.

CHROMOSOMAL LOCATION

Genetic locus: Smg6 (mouse) mapping to 11 B5.

PRODUCT

SMG6 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 SMG6 shRNA Plasmid (m): sc-61570-SH and SMG6 shRNA (m) Lentiviral Particles: sc-61570-V as alternate gene silencing products.

For independent verification of SMG6 (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-61570A, sc-61570B and sc-61570C.

PROTOCOLS

See our web site at www.scbt.com 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

SMG6 siRNA (m) is recommended for the inhibition of SMG6 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 SMG6 gene expression knockdown using RT-PCR Primer: SMG6 (m)-PR: sc-61570-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.