SANTA CRUZ BIOTECHNOLOGY, INC.

EXOSC1 siRNA (h): sc-90451

BACKGROUND

The exosome is a multi-subunit complex composed of several highly conserved proteins, some of which are 3' to 5' exoribonucleases. The complex is involved in a variety of cellular processes and is responsible for degrading unstable mRNAs that contain AU-rich (ARE) elements in their untranslated 3' region. EXOSC1 (exosome component 1), also known as CSL4 or CGI-108, is a 195 amino acid protein that contains one S1 motif domain. Localizing to the nucleus, nucleolus and cytoplasm, EXOSC1 is a component of the catalytically inactive RNA exosome core (Exo-9) complex, which may associate with catalyic subunits EXOSC10, DIS3 and DIS3L. The Exo-9 complex is thought to play an essential role in the binding and presentation of RNA for ribonucleolysis. EXOSC1 plays an important role in this complex by stabilizing the hexameric ring of RNase PH-domain subunits through interactions with EXOSC6 and EXOSC8.

REFERENCES

1. Blüthner, M. and Bautz, F.A. 1992. Cloning and characterization of the cDNA coding for a polymyositis-scleroderma overlap syndrome-related nucleolar 100-kD protein. J. Exp. Med. 176: 973-980.
2. Brouwer, R., Pruijn, G.J. and van Venrooij, W.J. 2001. The human exosome: an autoantigenic complex of exoribonucleases in myositis and scleroderma. Arthritis Res. 3: 102-106.
3. Chen, C.Y., Gherzi, R., Ong, S.E., Chan, E.L., Raijmakers, R., Pruijn, G.J., Stoecklin, G., Moroni, C., Mann, M. and Karin, M. 2001. AU binding proteins recruit the exosome to degrade ARE-containing mRNAs. Cell 107: 451-464.
4. Brouwer, R., Vree Egberts, W.T., Hengstman, G.J., Raijmakers, R., van Engelen, B.G., Seelig, H.P., Renz, M., Mierau, R., Genth, E., Pruijn, G.J. and van Venrooij, W.J. 2002. Autoantibodies directed to novel components of the PM/Scl complex, the human exosome. Arthritis Res. 4: 134-138.
5. Raijmakers, R., Noordman, Y.E., van Venrooij, W.J. and Pruijn, G.J. 2002. Protein-protein interactions of hCsl4p with other human exosome subunits. J. Mol. Biol. 315: 809-818.
6. Raijmakers, R., Egberts, W.V., van Venrooij, W.J. and Pruijn, G.J. 2002. Protein-protein interactions between human exosome components support the assembly of RNase PH-type subunits into a six-membered PNPase-like ring. J. Mol. Biol. 323: 653-663.
7. Deloukas, P., Earthrowl, M.E., Grafham, D.V., Rubenfield, M., French, L., Steward, C.A., Sims, S.K., Jones, M.C., Searle, S., Scott, C., Howe, K., Hunt, S.E., Andrews, T.D., Gilbert, J.G., Swarbreck, D., Ashurst, J.L., et al. 2004. The DNA sequence and comparative analysis of human chromosome 10. Nature 429: 375-381.
8. Liu, Q., Greimann, J.C. and Lima, C.D. 2006. Reconstitution, activities, and structure of the eukaryotic RNA exosome. Cell 127: 1223-1237.
9. Schilders, G., van Dijk, E. and Pruijn, G.J. 2007. C1D and hMtr4p associate with the human exosome subunit PM/Scl-100 and are involved in pre-rRNA processing. Nucleic Acids Res. 35: 2564-2572.

CHROMOSOMAL LOCATION

Genetic locus: EXOSC1 (human) mapping to 10q24.1.

PRODUCT

EXOSC1 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 EXOSC1 shRNA Plasmid (h): sc-90451-SH and EXOSC1 shRNA (h) Lentiviral Particles: sc-90451-V as alternate gene silencing products.

For independent verification of EXOSC1 (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-90451A, sc-90451B and sc-90451C.

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

EXOSC1 siRNA (h) is recommended for the inhibition of EXOSC1 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 EXOSC1 gene expression knockdown using RT-PCR Primer: EXOSC1 (h)-PR: sc-90451-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.

PROTOCOLS

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