SANTA CRUZ BIOTECHNOLOGY, INC.

XRN1 siRNA (m): sc-61812

BACKGROUND

Degradation of mRNA is a critical aspect of gene expression that occurs via the exoribonuclease. Exoribonuclease I (XRN1), also known as Sep1 or Rar5, is a 1,694-amino acid protein that functions as the major cytoplasmic 5' to 3' exoribonuclease and plays an important role in mRNA turnover. XRN1 may also function in the microtubular cytoskeleton as well as in DNA recombination and replication. XRN1 induces the expression of stress granules (SGs), cytoplasmic aggregates of stalled translational preinitiation complexes that accumulate during stress, and GW bodies/processing bodies (PBs), distinct cytoplasmic sites of mRNA degradation. Loss of XRN1 markedly affects cell growth rates.

REFERENCES

1. Heyer, W.D., et al. 1995. Regulation and intracellular localization of *Saccharomyces cerevisiae* strand exchange protein 1 (Sep1/XRN1/Kem1), a multifunctional exonuclease. Mol. Cell. Biol. 15: 2728-2736.
2. Bashkirov, V.I., et al. 1996. Identification of functional is required for transition through meiotic prophase in *Saccharomyces cerevisiae*. Chromosoma 104: 215-222.
3. Poole, T.L., et al. 1997. Structural modifications of RNA influence the 5'-exoribonucleolytic hydrolysis by XRN1 and HKE1 of *Saccharomyces cerevisiae*. Biochem. Biophys. Res. Commun. 235: 799-805.
4. Brown, J.T., et al. 2000. Inhibition of mRNA turnover in yeast by an XRN1 mutation enhances the requirement for eIF4E binding to eIF4G and for proper capping of transcripts by Ceg1p. Genetics 155: 31-42.
5. Stevens, A. 2001. 5'-exoribonuclease 1: XRN1. Methods Enzymol. 342: 251-259.

CHROMOSOMAL LOCATION

Genetic locus: Xrn1 (mouse) mapping to 9 E3.3.

PRODUCT

XRN1 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 XRN1 shRNA Plasmid (m): sc-61812-SH and XRN1 shRNA (m) Lentiviral Particles: sc-61812-V as alternate gene silencing products.

For independent verification of XRN1 (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-61812A, sc-61812B and sc-61812C.

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.

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

XRN1 siRNA (m) is recommended for the inhibition of XRN1 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.

GENE EXPRESSION MONITORING

XRN1 (C-1): sc-165985 is recommended as a control antibody for monitoring of XRN1 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 reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor XRN1 gene expression knockdown using RT-PCR Primer: XRN1 (m)-PR: sc-61812-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.