SANTA CRUZ BIOTECHNOLOGY, INC.

HYAL2 siRNA (m): sc-60825

BACKGROUND

Hyaluronidases (HAases or HYALs) are a family of lysosomal enzymes that are crucial for the spread of bacterial infections and of toxins present in a variety of venoms. HYALs may also be involved in the progression of cancer. In humans, six HYAL proteins have been identified. HYAL proteins use hydrolysis to degrade hyaluronic acid (HA), which is present in body fluids, tissues and the extracellular matrix of vertebrate tissues. HA keeps tissues hydrated, maintains osmotic balance and promotes cell proliferation, differentiation and metastasis. HA is also an important structural component of cartilage and other tissues and acts as a lubricant in joints. HYAL2 is a 452 amino acid peptide that localizes to the lysosomes of mammalian cells. The hyaluronidase activity of HYAL2 is most efficient at a pH below 4, and it only hydrolyzes HAs of high molecular mass. HYAL2 is also the receptor for two exogenous oncogenic viruses, Jaagsiekte sheep retrovirus (JSRV) and Enzootic nasal tumor virus. The viral envelope of JSRV physically associates with and activates HYAL2, consequently activating the Akt1 and mitogen-activated protein kinase-1 pathways, leading to oncogenic transformation.

REFERENCES

1. Csoka, A.B., et al. 2001. The six hyaluronidase-like genes in the human and mouse genomes. Matrix Biol. 20: 499-508.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 603551. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Bertrand, P., et al. 2004. Expression of HYAL2 mRNA, hyaluronan and hyaluronidase in B cell non-Hodgkin lymphoma: relationship with tumor aggressiveness. Int. J. Cancer 113: 207-212.
4. Stern, R. 2004. Hyaluronan catabolism: a new metabolic pathway. Eur. J. Cell Biol. 83: 317-325.
5. Chow, G. and Knudson, W. 2005. Characterization of promoter elements of the human HYAL2 gene. J. Biol. Chem. 280: 26904-26912.
6. Dunlap, K.A., et al. 2005. Sheep endogenous betaretroviruses (enJSRVs) and the hyaluronidase 2 (HYAL2) receptor in the ovine uterus and conceptus. Biol. Reprod. 73: 271-279.
7. Jedrzejas, M.J. and Stern, R. 2005. Structures of vertebrate hyaluronidases and their unique enzymatic mechanism of hydrolysis. Proteins 61: 227-238.
8. Udabage, L., et al. 2005. The over-expression of HAS2, HYAL2 and CD44 is implicated in the invasiveness of breast cancer. Exp. Cell Res. 310: 205-217.
9. Yi Lo, P.H., et al. 2006. Expression of candidate chromosome 3p21.3 tumor suppressor genes and downregulation of BLU in some esophageal squamous cell carcinomas. Cancer Lett. 234: 184-192.

CHROMOSOMAL LOCATION

Genetic locus: Hyal2 (mouse) mapping to 9 F1.

PROTOCOLS

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

PRODUCT

HYAL2 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 HYAL2 shRNA Plasmid (m): sc-60825-SH and HYAL2 shRNA (m) Lentiviral Particles: sc-60825-V as alternate gene silencing products.

For independent verification of HYAL2 (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-60825A, sc-60825B and sc-60825C.

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

HYAL2 siRNA (m) is recommended for the inhibition of HYAL2 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 HYAL2 gene expression knockdown using RT-PCR Primer: HYAL2 (m)-PR: sc-60825-PR (20 µl, 593 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Campo, G.M., et al. 2012. The inhibition of hyaluronan degradation reduced pro-inflammatory cytokines in mouse synovial fibroblasts subjected to collagen-induced arthritis. J. Cell. Biochem. 113: 1852-1867.

RESEARCH USE

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