SANTA CRUZ BIOTECHNOLOGY, INC.

HYAL1 siRNA (h): sc-78054

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. Most HYAL proteins 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. HYAL1 is a 435 amino acid hyaluronidase that is is expressed in multiple tissues, specifically in the serum, and is not expressed in brain. HYAL1 degrades HA into into fragments that stimulate angiogenesis. Expression of HYAL1 in various cancer cells may have a role in the regulation of tumor growth and progression.

REFERENCES

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2. Shuttleworth, T.L., Wilson, M.D., Wicklow, B.A., Wilkins, J.A. and Triggs-Raine, B.L. 2002. Characterization of the murine hyaluronidase gene region reveals complex organization and cotranscription of Hyal1 with downstream genes, Fus2 and Hyal3. J. Biol. Chem. 277: 23008-23018.
3. Franzmann, E.J., Schroeder, G.L., Goodwin, W.J., Weed, D.T., Fisher, P. and Lokeshwar, V.B. 2003. Expression of tumor markers hyaluronic acid and hyaluronidase (HYAL1) in head and neck tumors. Int. J. Cancer 106: 438-445.
4. Ekici, S., Cerwinka, W.H., Duncan, R., Gomez, P., Civantos, F., Soloway, M.S. and Lokeshwar, V.B. 2004. Comparison of the prognostic potential of hyaluronic acid, hyaluronidase (HYAL1), CD44v6 and microvessel density for prostate cancer. Int. J. Cancer 112: 121-129.
5. Isoyama, T., Thwaites, D., Selzer, M.G., Carey, R.I., Barbucci, R. and Lokeshwar, V.B. 2005. Differential selectivity of hyaluronidase inhibitors toward acidic and basic hyaluronidases. Glycobiology 16: 11-21.

CHROMOSOMAL LOCATION

Genetic locus: HYAL1 (human) mapping to 3p21.31.

PRODUCT

HYAL1 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 HYAL1 shRNA Plasmid (h): sc-78054-SH and HYAL1 shRNA (h) Lentiviral Particles: sc-78054-V as alternate gene silencing products.

For independent verification of HYAL1 (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-78054A, sc-78054B and sc-78054C.

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

HYAL1 siRNA (h) is recommended for the inhibition of HYAL1 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.

GENE EXPRESSION MONITORING

HYAL1 (1D10): sc-101340 is recommended as a control antibody for monitoring of HYAL1 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 HYAL1 gene expression knockdown using RT-PCR Primer: HYAL1 (h)-PR: sc-78054-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.