SANTA CRUZ BIOTECHNOLOGY, INC.

galectin-3 siRNA (h): sc-155994

BACKGROUND

Galectins are a family of soluble β-galactoside-binding animal lectins that modulate cell-to-cell adhesion and cell-to-extracellular matrix (ECM) interactions and play a role in tumor progression, pre-mRNA splicing and apoptosis. The galectin-3 protein, also known as Mac-2, hMac-2, GALBP, CBP35 or LGALS3, contains a single carbohydrate binding domain, which binds galactose-containing glycoconjugates. Galectin-3 is expressed in colonic and intestinal epithelium, inflammatory macrophages, papillary and follicular carcinomas, neoplastic astrocytes and some B and T lymphocytes. Upregulated expression of galectin-3 is involved in cancer progression and metastasis. Galectin-3 mediates the endocytosis of β1 integrins in a lactose-dependent manner and is associated with thyroid malignancy and Crohn's disease. It may also be used as a marker for diagnosing cases involving Hurthle cell adenomas and carcinomas.

REFERENCES

1. Huflejt, M.E., et al. 1997. Strikingly different localization of galectin-3 and galectin-4 in human colon adenocarcinoma T84 cells. Galectin-4 is localized at sites of cell adhesion. J. Biol. Chem. 272: 14294-14303.
2. Shimonishi, T., et al. 2001. Expression of endogenous galectin-1 and galectin-3 in intrahepatic cholangiocarcinoma. Hum. Pathol. 32: 302-310.
3. Guittaut, M., et al. 2001. Identification of an internal gene to the human galectin-3. J. Biol. Chem. 276: 2652-2667.

CHROMOSOMAL LOCATION

Genetic locus: LGALS3 (human) mapping to 14q22.3.

PRODUCT

galectin-3 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 galectin-3 shRNA Plasmid (h): sc-155994-SH and galectin-3 shRNA (h) Lentiviral Particles: sc-155994-V as alternate gene silencing products.

For independent verification of galectin-3 (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-155994A, sc-155994B and sc-155994C.

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

galectin-3 siRNA (h) is recommended for the inhibition of galectin-3 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

galectin-3 (B2C10): sc-32790 is recommended as a control antibody for monitoring of galectin-3 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor galectin-3 gene expression knockdown using RT-PCR Primer: galectin-3 (h)-PR: sc-155994-PR (20 µl, 483 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chen, X., et al. 2014. Autophagy induced by calcium phosphate precipitates targets damaged endosomes. J. Biol. Chem. 289: 11162-11174.
2. Lin, Y.H., et al. 2014. Aldosterone induced galectin-3 secretion *in vitro* and *in vivo:* from cells to humans. PLoS ONE 9: e95254.
3. Lee, K.M., et al. 2015. ECM1 regulates tumor metastasis and CSC-like property through stabilization of β-catenin. Oncogene 34: 6055-6065.
4. Wu, S.Y., et al. 2017. Cell intrinsic galectin-3 attenuates neutrophil Ros-dependent killing of candida by modulating CR3 downstream Syk activation. Front. Immunol. 8: 48.
5. Szychowski, K.A., et al. 2019. Antiproliferative effect of elastin-derived peptide VGVAPG on SH-SY5Y neuroblastoma cells. Neurotox. Res. 36: 503-514.
6. Schöll-Naderer, M., et al. 2019. Plant-derived saccharides and their inhibitory potential on metastasis associated cellular processes of pancreatic ductal adenocarcinoma cells. Carbohydr. Res. 490: 107903.
7. Aimjongjun, S., et al. 2020. Lectin affinity chromatography and quantitative proteomic analysis reveal that galectin-3 is associated with metastasis in nasopharyngeal carcinoma. Sci. Rep. 10: 16462.
8. Siddiqui, F.A., et al. 2021. Novel small molecule HSP 90/Cdc37 interface inhibitors indirectly target K-Ras-signaling. Cancers 13: 927.

RESEARCH USE

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