SANTA CRUZ BIOTECHNOLOGY, INC.

GATA-3 siRNA (h): sc-29331

BACKGROUND

Members of the GATA family share a conserved zinc finger DNA-binding domain and are capable of binding the WGATAR consensus sequence. GATA-1 is erythroid-specific and is responsible for the regulated transcription of erythroid genes. It is an essential component in the generation of the erythroid lineage. GATA-2 is expressed in embryonic brain and liver, HeLa and endothelial cells, as well as in erythroid cells. Studies with a modified GATA consensus sequence, AGATCTTA, have shown that GATA-2 and GATA-3 recognize this mutated consensus while GATA-1 has poor recognition of this sequence. This indicates broader regulatory capabilities of GATA-2 and GATA-3 than GATA-1. GATA-3 is highly expressed in T lymphocytes. GATA-4, GATA-5 and GATA-6 comprise a subfamily of transcription factors. Both GATA-4 and GATA-6 are found in heart, pancreas and ovary; lung and liver tissues exhibit GATA-6, but not GATA-4 expression. GATA-5 expression has been observed in differentiated heart and gut tissues and is present throughout the course of development in the heart. Although expression patterns of the various GATA transcription factors may overlap, it is not yet apparent how the GATA factors are able to discriminate in binding their appropriate target sites.

CHROMOSOMAL LOCATION

Genetic locus: GATA3 (human) mapping to 10p14.

PRODUCT

GATA-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 GATA-3 shRNA Plasmid (h): sc-29331-SH and GATA-3 shRNA (h) Lentiviral Particles: sc-29331-V as alternate gene silencing products.

For independent verification of GATA-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-29331A, sc-29331B and sc-29331C.

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

GATA-3 siRNA (h) is recommended for the inhibition of GATA-3 expression in human cells.

PROTOCOLS

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

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

GATA-3 (HG3-31): sc-268 is recommended as a control antibody for monitoring of GATA-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 GATA-3 gene expression knockdown using RT-PCR Primer: GATA-3 (h)-PR: sc-29331-PR (20 µl, 444 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, G.Y., et al. 2008. Significance of NFκB/GATA axis in tumor necrosis factor-α-induced expression of 6-sulfated cell recognition glycans in human T-lymphocytes. J. Biol. Chem. 283: 34563-34570.
2. Chen, R.M., et al. 2010. GATA-3 transduces survival signals in osteoblasts through upregulation of Bcl-x_L gene expression. J. Bone Miner. Res. 25: 2193-2204.
3. Liu, Z., et al. 2014. Enhancer activation requires *trans*-recruitment of a mega transcription factor complex. Cell 159: 358-373.
4. Guan, W., et al. 2017. GATA binding protein 3 is correlated with leptin regulation of PPARγ1 in hepatic stellate cells. J. Cell. Mol. Med. 21: 568-578.
5. Chakraborty, S., et al. 2017. Transcriptional regulation of FOXP3 requires integrated activation of both promoter and CNS regions in tumor-induced $CD8^+$ Treg cells. Sci. Rep. 7: 1628.
6. Xu, M., et al. 2018. Role of p38γ MAPK in regulation of EMT and cancer stem cells. Biochim. Biophys. Acta Mol. Basis Dis. 1864: 3605-3617.
7. Sidibe, A., et al. 2018. Angiogenic factor-driven inflammation promotes extravasation of human proangiogenic monocytes to tumours. Nat. Commun. 9: 355.
8. Rallabandi, H.R., et al. 2025. Defining mechanistic links between the non-coding variant rs17673553 in CLEC16A and lupus susceptibility. Int. J. Mol. Sci. 26: 314.

RESEARCH USE

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