SANTA CRUZ BIOTECHNOLOGY, INC.

GATA-6 siRNA (r): sc-270094

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.

REFERENCES

1. Ko, L.J., et al. 1991. Murine and human T-lymphocyte GATA-3 factors mediate transcription through a *cis*-regulatory element within the human T-cell receptor δ gene enhancer. Mol. Cell. Biol. 11: 2778-2784.
2. Dorfman, D.M., et al. 1992. Human transcription factor GATA-2. Evidence for regulation of preproendothelin-1 gene expression in endothelial cells. J. Biol. Chem. 267: 1279-1285.
3. Ko, L.J., et al. 1993. DNA-binding specificities of the GATA transcription factor family. Mol. Cell. Biol. 13: 4011-4022.
4. Laverriere, A.C., et al. 1994. GATA-4/5/6, a subfamily of three transcription factors transcribed in developing heart and gut. J. Biol. Chem. 269: 23177-23184.
5. Suzuki, E., et al. 1996. The human GATA-6 gene: structure, chromosomal location, and regulation of expression by tissue-specific and mitogen-responsive signals. Genomics 38: 283-290.
6. Lepore, J.J., et al. 2006. GATA-6 regulates semaphorin 3C and is required in cardiac neural crest for cardiovascular morphogenesis. J. Clin. Invest. 116: 929-939.
7. Setogawa, T., et al. 2006. The tumor suppressor LKB1 induces p21 expression in collaboration with LMO4, GATA-6, and Ldb1. Biochem. Biophys. Res. Commun. 343: 1186-1190.
8. Shureiqi, I., et al. 2007. The transcription factor GATA-6 is overexpressed *in vivo* and contributes to silencing 15-LOX-1 *in vitro* in human colon cancer. FASEB J. 21: 743-753.
9. Vuorenoja, S., et al. 2007. Adrenocortical tumorigenesis, luteinizing hormone receptor and transcription factors GATA-4 and GATA-6. Mol. Cell. Endocrinol. 269: 38-45.

CHROMOSOMAL LOCATION

Genetic locus: Gata6 (rat) mapping to 18p13.

PRODUCT

GATA-6 siRNA (r) is a pool of 2 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-6 shRNA Plasmid (r): sc-270094-SH and GATA-6 shRNA (r) Lentiviral Particles: sc-270094-V as alternate gene silencing products.

For independent verification of GATA-6 (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270094A and sc-270094B.

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-6 siRNA (r) is recommended for the inhibition of GATA-6 expression in rat 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 GATA-6 gene expression knockdown using RT-PCR Primer: GATA-6 (r)-PR: sc-270094-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kee, H.J., et al. 2015. Sulforaphane suppresses cardiac hypertrophy by inhibiting GATA-4/GATA-6 expression and MAPK signaling pathways. Mol. Nutr. Food Res. 59: 221-230.

RESEARCH USE

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