SANTA CRUZ BIOTECHNOLOGY, INC.

Ikaros siRNA (m): sc-35641

BACKGROUND

Ikaros family members, including Ikaros and Helios, are nuclear factors that colocalize with DNA replication machinery components in higher-order chromatin structures and respond to signaling events, such as T cell activation. Helios and Ikaros bind to similar DNA sequences, and they function as hemopoietic-specific transcription factors. Members of the Ikaros family contain zinc-finger domains that are involved in DNA-binding and in the formation of homodimers and heterodimers between Ikaros family members. Expression of Ikaros is primarily detected in the thymus and spleen, where it is essential for regulating T cell specific gene transcription and for the differentiation and commitment of early hemopoietic progenitors to the B and T lymphoid lineages. Similarly, Helios expression is detected primarily in T cells and in the earliest embryonic hemopoietic precursors and in adult stem cells. Ikaros and Helios also appear to regulate cell cycle entry by inducing transcriptional repression under varying conditions and, thereby, mediate T cell activation and IL-2 mediated signaling events.

REFERENCES

1. Georgopoulos, K., et al. 1992. Ikaros, an early lymphoid-specific transcription factor and a putative mediator for T cell commitment. Science 258: 808-812.
2. Molnar, A., et al. 1994. The Ikaros gene encodes a family of functionally diverse zinc finger DNA-binding proteins. Mol. Cell. Biol. 14: 8292-8303.
3. Sun, L., et al. 1996. Zinc finger-mediated protein interactions modulate Ikaros activity, a molecular control of lymphocyte development. EMBO J. 15: 5358-5369.
4. Kelley, C.M., et al. 1998. Helios, a novel dimerization partner of Ikaros expressed in the earliest hematopoietic progenitors. Curr. Biol. 8: 508-515.
5. Hahm, K., et al. 1998. Helios, a T cell-restricted Ikaros family member that quantitatively associates with Ikaros at centromeric heterochromatin. Genes Dev. 12: 782-796.
6. Klug, C.A., et al. 1998. Hematopoietic stem cells and lymphoid progenitors express different Ikaros isoforms, and Ikaros is localized to heterochromatin in immature lymphocytes. Proc. Natl. Acad. Sci. USA 95: 657-662.
7. Cortes, M., et al. 1999. Control of lymphocyte development by the Ikaros gene family. Curr. Opin. Immunol. 11: 167-171.
8. Rebollo, A., et al. 2003. Ikaros, Aiolos and Helios: transcription regulators and lymphoid malignancies. Immunol. Cell Biol. 81:171-175.
9. Dovat, S., et al. 2005. Transgenic expression of Helios in B lineage cells alters B cell properties and promotes lymphomagenesis. J. Immunol. 175: 3508-3515.

CHROMOSOMAL LOCATION

Genetic locus: Ikzf1 (mouse) mapping to 11 A1.

PROTOCOLS

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

PRODUCT

Ikaros 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 Ikaros shRNA Plasmid (m): sc-35641-SH and Ikaros shRNA (m) Lentiviral Particles: sc-35641-V as alternate gene silencing products.

For independent verification of Ikaros (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-35641A, sc-35641B and sc-35641C.

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

Ikaros siRNA (m) is recommended for the inhibition of Ikaros 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 Ikaros gene expression knockdown using RT-PCR Primer: Ikaros (m)-PR: sc-35641-PR (20 µl, 437 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Cho, S.J., et al. 2008. Ikaros negatively regulates inducible nitric oxide synthase expression in macrophages: involvement of Ikaros phosphorylation by casein kinase 2. Cell. Mol. Life Sci. 65: 3290-3303.

RESEARCH USE

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