SANTA CRUZ BIOTECHNOLOGY, INC.

AIRE-1 siRNA (m): sc-37670

BACKGROUND

The autoimmune regulator gene, which is defective in the hereditary autoimmune disease APECED, encodes the transcriptional activator AIRE-1. AIRE-1 is expressed in the medullary epithelial cells and monocyte-dendritic cells of the thymus, with lower expression in the spleen, fetal liver and lymph nodes. In adult tissue, AIRE-1 expression in the thymus is confined to the medulla and the cortico-medullary junction, where it is modulated by thymocytes undergoing negative selection. At the cellular level, AIRE-1 is located in microtubular structures of the cytoskeleton and in discrete nuclear dots resembling ND10 nuclear bodies. AIRE-1 is induced by developing early thymocytes and is associated with the correct establishment of a regular thymic environment. AIRE-1 regulates thymic architecture via transcriptional control of downstream target genes. AIRE-1 mutations in APECED patients may affect thymic T cell selection and the formation of self-tolerance.

REFERENCES

1. Zuklys, S., et al. 2000. Normal thymic architecture and negative selection are associated with AIRE expression, the gene defective in the autoimmune-polyendocrinopathy-candidiasis-ectodermal dystrophy (APECED). J. Immunol. 4: 1976-1983.
2. Pitkanen, J., et al. 2001. Subcellular localization of the autoimmune regulator protein. Characterization of nuclear targeting and transcriptional activation domain. J. Biol. Chem. 22: 19597-19602.
3. Vogel, A., et al. 2001. Autoimmune regulator AIRE: evidence for genetic differences between autoimmune hepatitis and hepatitis as part of the autoimmune polyglandular syndrome type 1. Hepatology 5: 1047-1052.

CHROMOSOMAL LOCATION

Genetic locus: Aire (mouse) mapping to 10 C1.

PRODUCT

AIRE-1 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 AIRE-1 shRNA Plasmid (m): sc-37670-SH and AIRE-1 shRNA (m) Lentiviral Particles: sc-37670-V as alternate gene silencing products.

For independent verification of AIRE-1 (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-37670A, sc-37670B and sc-37670C.

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

AIRE-1 siRNA (m) is recommended for the inhibition of AIRE-1 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.

GENE EXPRESSION MONITORING

AIRE-1 (C-2): sc-373703 is recommended as a control antibody for monitoring of AIRE-1 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 AIRE-1 gene expression knockdown using RT-PCR Primer: AIRE-1 (m)-PR: sc-37670-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. Soumya, V., et al. 2016. Murine uterine decidualization is a novel function of autoimmune regulator-beyond immune tolerance. Am. J. Reprod. Immunol. 76: 224-234.

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.