SANTA CRUZ BIOTECHNOLOGY, INC.

AHRR siRNA (m): sc-140918

BACKGROUND

AHRR (aryl-hydrocarbon receptor repressor), also known as bHLHe77 (class E basic helix-loop-helix protein 77), is a 701 amino acid protein. Encoded by a gene that maps to human chromosome 5p15.33, AHRR exists as three alternatively spliced isoforms. AHRR localizes initially in cytoplasm, interacts with Arnt 1 and translocates to nucleus for prominent localization. Containing one basic helix-loop-helix (bHLH) domain and one PAS (PER-ARNT-SIM) domain, AHRR is highly expressed in testis, lung, ovary, spleen, pancreas, kidney and thymus. AHRR is also highly expressed in mononuclear cells from umbilical cord blood and autoregulates its expression by associating with its own xenobiotic response element (XRE) site. AHRR regulates dioxin toxicity and participates in cell growth regulation and differentiation. Suppressing transcription activity of Ah Receptor, AHRR competes with the transcription factor for heterodimer formation with Arnt 1, and subsequently binds to the XRE sequence in the promoter. AHRR also suppresses CYP1A1 by binding the XRE sequence and recruiting ANKRA, HDAC4 or HDAC5. AHRR may be linked to male infertility and endometriosis susceptibilty.

REFERENCES

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2. Watanabe, M., et al. 2004. Association of male infertility with Pro185Ala polymorphism in the aryl hydrocarbon receptor repressor gene: implication for the susceptibility to dioxins. Fertil. Steril. 82: 1067-1071.
3. Yamamoto, J., et al. 2004. Characteristic expression of aryl hydrocarbon receptor repressor gene in human tissues: organ-specific distribution and variable induction patterns in mononuclear cells. Life Sci. 74: 1039-1049.
4. Tsuchiya, M., et al. 2005. Analysis of the AhR, ARNT, and AHRR gene polymorphisms: genetic contribution to endometriosis susceptibility and severity. Fertil. Steril. 84: 454-458.
5. Kanno, Y., et al. 2007. Identification of intracellular localization signals and of mechanisms underlining the nucleocytoplasmic shuttling of human aryl hydrocarbon receptor repressor. Biochem. Biophys. Res. Commun. 364: 1026-1031.
6. Haarmann-Stemmann, T., et al. 2007. Analysis of the transcriptional regulation and molecular function of the aryl hydrocarbon receptor repressor in human cell lines. Drug Metab. Dispos. 35: 2262-2269.
7. Merisalu, A., et al. 2007. The contribution of genetic variations of aryl hydrocarbon receptor pathway genes to male factor infertility. Fertil. Steril. 88: 854-859.
8. Zudaire, E., et al. 2008. The aryl hydrocarbon receptor repressor is a putative tumor suppressor gene in multiple human cancers. J. Clin. Invest. 118: 640-650.

CHROMOSOMAL LOCATION

Genetic locus: Ahrr (mouse) mapping to 13 C1.

PRODUCT

AHRR 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 AHRR shRNA Plasmid (m): sc-140918-SH and AHRR shRNA (m) Lentiviral Particles: sc-140918-V as alternate gene silencing products.

For independent verification of AHRR (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-140918A, sc-140918B and sc-140918C.

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

AHRR siRNA (m) is recommended for the inhibition of AHRR 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 AHRR gene expression knockdown using RT-PCR Primer: AHRR (m)-PR: sc-140918-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. Chandrakar, P., et al. 2019. Differential induction of SOCS isoforms by *Leishmania donovani* impairs macrophage-T cell cross-talk and host defense. J. Immunol. 204: 596-610.

RESEARCH USE

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