

AHRR siRNA (h): sc-91825

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 susceptibility.

REFERENCES

1. Fujita, H., et al. 2002. Characterization of the aryl hydrocarbon receptor repressor gene and association of its Pro185Ala polymorphism with micropenis. *Teratology* 65: 10-18.
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.

CHROMOSOMAL LOCATION

Genetic locus: AHRR (human) mapping to 5p15.33.

PRODUCT

AHRR 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see AHRR shRNA Plasmid (h): sc-91825-SH and AHRR shRNA (h) Lentiviral Particles: sc-91825-V as alternate gene silencing products.

For independent verification of AHRR (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-91825A, sc-91825B and sc-91825C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

AHRR siRNA (h) is recommended for the inhibition of AHRR expression in human 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 μ M in 66 μ l. 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

AHRR (5G11): sc-293297 is recommended as a control antibody for monitoring of AHRR 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 AHRR gene expression knockdown using RT-PCR Primer: AHRR (h)-PR: sc-91825-PR (20 μ l, 563 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Um, J.Y., et al. 2021. Aryl hydrocarbon receptor repressor is hypomethylated in psoriasis and promotes psoriasis-like inflammation in HaCaT cells. *Int. J. Mol. Sci.* 22: 12715.

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.