SANTA CRUZ BIOTECHNOLOGY, INC.

Arnt 1 siRNA (h): sc-29733

BACKGROUND

AhR, Arnt 1, Arnt 2 and BMAL1 are members of a family of transcription factors that contain a basic helix-loop-helix motif and a common "PAS" motif. The aromatic (aryl) hydrocarbon receptor, AhR, is a ligand dependent transcription factor that interacts with specific DNA sequences termed xenobiotic responsive elements (XREs) to activate several genes including CYP1A1, glutathione S-transferase Ya subunit and DT-diaphorase. The Ah receptor nuclear translocator proteins (Arnt 1 or Arnt 2) are required for ligand-dependent nuclear translocation of the Ah receptor and are also necessary for Ah receptor binding to the XRE element. Arnt 1 (aryl hydrocarbon receptor nuclear translocator), also known as HIF1B, TANGO, bHLHe2, HIF1BETA, HIF-1β or ARNT, is a 789 amino acid nuclear protein that contains a basic helix-loop-helix (bHLH) domain, a PAC (PAS-associated C-terminal) domain and two PAS (PER-ARNT-SIM) domains.

CHROMOSOMAL LOCATION

Genetic locus: ARNT (human) mapping to 1q21.3.

PRODUCT

Arnt 1 siRNA (h) is a target-specific 19-25 nt siRNA 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 Arnt 1 shRNA Plasmid (h): sc-29733-SH and Arnt 1 shRNA (h) Lentiviral Particles: sc-29733-V as alternate gene silencing products.

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

Arnt 1 siRNA (h) is recommended for the inhibition of Arnt 1 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 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

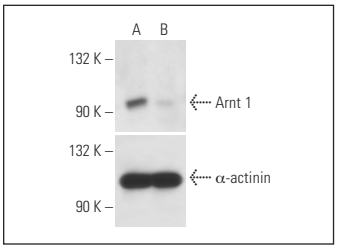
Arnt 1 (A-3): sc-17811 is recommended as a control antibody for monitoring of Arnt 1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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 Arnt 1 gene expression knockdown using RT-PCR Primer: Arnt 1 (h)-PR: sc-29733-PR (20 µl, 458 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



Arnt 1 siRNA (h): sc-29733. Western blot analysis of Arnt 1 expression in non-transfected control (**A**) and Arnt 1 siRNA transfected (**B**) HeLa cells. Blot probed with Arnt 1 (G-3): sc-17812. α-actinin (H-2): sc-17829 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Li, Y., et al. 2010. The aryl hydrocarbon receptor nuclear translocator-interacting protein 2 suppresses the estrogen receptor signaling via an Arnt-dependent mechanism. Arch. Biochem. Biophys. 502: 121-129.
2. Mandl, M., et al. 2013. Hypoxia-inducible factor-1β (HIF-1β) is upregulated in a HIF-1α-dependent manner in 518A2 human melanoma cells under hypoxic conditions. Biochem. Biophys. Res. Commun. 434: 166-172.
3. Rzemieniec, J., et al. 2016. Selective aryl hydrocarbon receptor modulator 3,3'-diindolylmethane impairs AhR and Arnt signaling and protects mouse neuronal cells against hypoxia. Mol. Neurobiol. 53: 5591-5606.
4. Li, D., et al. 2017. Hepatic hypoxia-inducible factors inhibit PPARα expression to exacerbate acetaminophen induced oxidative stress and hepatotoxicity. Free Radic. Biol. Med. 110: 102-116.

RESEARCH USE

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