

## Arnt 2 siRNA (h): sc-29735

### 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 2 (aryl hydrocarbon receptor nuclear translocator 2), also known as Hif-2b or bHLHe1, is a 712 amino acid nuclear protein that is exclusively expressed in adult brain and kidney. Containing a basic helix-loop-helix (bHLH) domain, a PAC (PAS-associated C-terminal) domain and two PAS (PER-ARNT-SIM) domains, Arnt 2 specifically recognizes the xenobiotic response element (XRE).

### REFERENCES

1. Reyes, H., et al. 1992. Identification of the Ah receptor nuclear translocator protein (Arnt) as a component of the DNA binding form of the Ah receptor. *Science* 256: 1193-1195.
2. Sogawa, K., et al. 1995. Transcriptional activation domains of the Ah receptor and Ah receptor nuclear translocator. *J. Cancer Res. Clin. Oncol.* 121: 612-620.
3. Drutel, G., et al. 1996. Cloning and selective expression in brain and kidney of Arnt2 homologous to the Ah receptor nuclear translocator (Arnt). *Biochem. Biophys. Res. Commun.* 225: 333-339.
4. Hirose, K., et al. 1996. cDNA cloning and tissue-specific expression of a novel basic helix-loop-helix/PAS factor (Arnt2) with close sequence similarity to the aryl hydrocarbon receptor nuclear translocator (Arnt). *Mol. Cell. Biol.* 16: 1706-1713.
5. Ikeda, M., et al. 1997. cDNA cloning and tissue-specific expression of a novel basic helix-loop-helix/PAS protein (BMAL1) and identification of alternatively spliced variants with alternative translation initiation site usage. *Biochem. Biophys. Res. Commun.* 233: 258-264.
6. Sogawa, K., et al. 1997. Ah receptor, a novel ligand-activated transcription factor. *J. Biochem.* 122: 1075-1079.

### CHROMOSOMAL LOCATION

Genetic locus: ARNT2 (human) mapping to 15q25.1.

### PRODUCT

Arnt 2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Arnt 2 shRNA Plasmid (h): sc-29735-SH and Arnt 2 shRNA (h) Lentiviral Particles: sc-29735-V as alternate gene silencing products.

For independent verification of Arnt 2 (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-29735A, sc-29735B and sc-29735C.

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

### APPLICATIONS

Arnt 2 siRNA (h) is recommended for the inhibition of Arnt 2 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  $\mu$ M in 66  $\mu$ 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

Arnt 2 (B-11): sc-393683 is recommended as a control antibody for monitoring of Arnt 2 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

### RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Arnt 2 gene expression knockdown using RT-PCR Primer: Arnt 2 (h)-PR: sc-29735-PR (20  $\mu$ l, 526 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

### RESEARCH USE

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

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.