SANTA CRUZ BIOTECHNOLOGY, INC.

ARX siRNA (m): sc-60205

BACKGROUND

The aristaless-related homeobox (ARX) gene encodes a protein of 562 amino acids which contains two conserved domains, a C-peptide (or aristaless domain) and the PRD-like class homeobox domain. ARX is a member of the group II aristaless-related protein family and is expressed in fetal and adult brain and skeletal muscle. It may be involved in the differentiation and maintenance of neuronal cell types in the human central nervous system. Defects in the ARX gene are associated with various disorders, including X-linked mental retardation (XLMR), X-linked lissencephaly with abnormal genitalia (XLAG), X-linked infantile spasm syndrome (ISSX), X-linked myoclonic epilepsy with intellectual disability and spasticity (XMEDS), Partington syndrome (PRTS), non-specific X-linked mental retardation type 36 (MRX36) and non-specific X-linked mental retardation type 54 (MRX54).

REFERENCES

1. Stromme, P., et al. 2002. Mutations in the human ortholog of aristaless cause X-linked mental retardation and epilepsy. Nat. Genet. 30: 441-445.
2. Kitamura, K., et al. 2002. Mutation of ARX causes abnormal development of forebrain and testes in mice and X-linked lissencephaly with abnormal genitalia in humans. Nat. Genet. 32: 359-369.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 300382. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Yoshihara, S., et al. 2005. ARX homeobox gene is essential for development of mouse olfactory system. Development 132: 751-762.
5. Collombat, P., et al. 2005. The simultaneous loss of ARX and PAX4 genes promotes a somatostatin-producing cell fate specification at the expense of the α- and β-cell lineages in the mouse endocrine pancreas. Development 132: 2969-2980.
6. Kelly, L.E., et al. 2005. Recombineered *Xenopus tropicalis* BAC expresses a GFP reporter under the control of ARX transcriptional regulatory elements in transgenic *Xenopus laevis* embryos. Genesis 41: 185-191.
7. Poirier, K., et al. 2005. Maternal mosaicism for mutations in the ARX gene in a family with X-linked mental retardation. Hum. Genet. 118: 45-48.

CHROMOSOMAL LOCATION

Genetic locus: Arx (mouse) mapping to X C3.

PRODUCT

ARX 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 ARX shRNA Plasmid (m): sc-60205-SH and ARX shRNA (m) Lentiviral Particles: sc-60205-V as alternate gene silencing products.

For independent verification of ARX (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-60205A, sc-60205B and sc-60205C.

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

ARX siRNA (m) is recommended for the inhibition of ARX 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

ARX (4A8): sc-293449 is recommended as a control antibody for monitoring of ARX 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 ARX gene expression knockdown using RT-PCR Primer: ARX (m)-PR: sc-60205-PR (20 µl). 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 for detailed protocols and support products.