SANTA CRUZ BIOTECHNOLOGY, INC.

# NPAS2 siRNA (m): sc-38170

## BACKGROUND

Members of the basic helix-loop-helix-PER-ARNT-SIM (bHLH-PAS) family are transcription factors that contain a bHLH DNA binding domain located amino-terminal to a PAS domain. Neuronal PAS domain protein 2 (NPAS2, also designated PAS 4/MOP4) is a member of the bHLH-PAS family and the PAS superfamily. NPAS2, which maps to chromosome 2p11.2, is expressed primarily in the neurons during the first week of postnatal development. The pattern of NPAS2 expression temporally matches the development of learning and memory, and spatially matches the frontal association/limbic forebrain pathway. NPAS2 may serve a regulatory role in the development and maintenance of long-term memory, and may be required for the processing of complex sensory information. NPAS2 and MOP3 form a transcriptionally active heterodimer which binds to a CACGTGA-containing DNA element and drives transcription from a linked luciferase reporter gene.

## REFERENCES


1. Hogenesch, J.B., et al. 1997. Characterization of a subset of the basic-helix-loop-helix-PAS superfamily that interacts with components of the dioxin signaling pathway. J. Biol. Chem. 272: 8581-8593.
2. Zhou, Y.D., et al. 1997. Molecular characterization of two mammalian bHLH_PAS domain proteins selectively expressed in the central nervous system. Proc. Natl. Acad. Sci. USA 94: 713-718.
3. Hogenesch, J.B., et al. 1998. The basic-helix-loop-helix-PAS orphan MOP3 forms transcriptionally active complexes with circadian and hypoxia factors. Proc. Natl. Acad. Sci. USA 95: 5474-5479.
4. Garcia, J.A., et al. 2000. Impaired cued and contextual memory in NPAS2-deficient mice. Science 288: 2226-2230.
5. Chong, N.W., et al. 2000. Character-ization of the chicken serotonin N-acetyltransferase gene. Activation via clock gene heterodimer/E box interaction. J. Biol. Chem. 275:32991-32998.


## CHROMOSOMAL LOCATION

Genetic locus: Npas2 (mouse) mapping to 1 B.

## PRODUCT

NPAS2 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 NPAS2 shRNA Plasmid (m): sc-38170-SH and NPAS2 shRNA (m) Lentiviral Particles: sc-38170-V as alternate gene silencing products.

For independent verification of NPAS2 (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-38170A, sc-38170B and sc-38170C.

## PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support 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

NPAS2 siRNA (m) is recommended for the inhibition of NPAS2 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 NPAS2 gene expression knockdown using RT-PCR Primer: NPAS2 (m)-PR: sc-38170-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.