

# OAZ siRNA (h): sc-38144

## BACKGROUND

OAZ (Olf-1/EBF associated zinc finger), also known as Roaz, is a 30-zinc finger, DNA-binding factor that associates with members of the Smad family of transcription factors in response to BMP2 activation. Bone morphogenic proteins (BMPs), are the largest group within the TGF $\beta$  growth factors superfamily and are involved in embryonic development, specifically the formation of left-right asymmetry, neurogenesis, organogenesis and skeletal development. BMPs bind to surface receptors, which then phosphorylate serine residues of specific Smad proteins to induce Smad translocation to the nucleus and transcriptional activation of BMP targeted genes. OAZ specifically cooperates with the BMP-activated Smads, namely Smad1, 5 and 8, in binding to the CAGAC and TGGAGC boxes within the BRE, or BMP response element, and activating transcription. OAZ contains a BMP signaling module formed by two clusters of fingers that individually associate with either the Smads or the BMP response element. Distinct regions of OAZ, separate from the modules involved in BMP regulation, also enable OAZ to function as a transcriptional partner of Olf-1/EBF in olfactory epithelium and lymphocyte development, indicating that, as a multi-zinc finger protein, OAZ may have dual roles in signal transduction during development.

## REFERENCES

- Hogan, B.L.M. 1996. Bone morphogenetic proteins: multifunctional regulators of vertebrate development. *Genes Dev.* 10: 1580-1594.
- Tsai, R.Y., et al. 1997. Cloning and functional characterization of Roaz, a zinc finger protein that interacts with O/E-1 to regulate gene expression: implications for olfactory neuronal development. *J. Neurosci.* 17: 4159-4169.
- Tsai, R.Y., et al. 1998. Identification of DNA recognition sequences and protein interaction domains of the multiple-Zn-finger protein Roaz. *Mol. Cell. Biol.* 18: 6447-6456.
- Macias-Silva, M., et al. 1998. Specific activation of Smad1 signaling pathways by the BMP7 type I receptor, ALK2. *J. Biol. Chem.* 273: 25628-25636.
- Klug, A. 1999. Zinc finger peptides for the regulation of gene expression. *J. Mol. Biol.* 293: 215-218.
- Hata, A., et al. 2000. OAZ uses distinct DNA- and protein-binding zinc fingers in separate BMP-Smad and Olf signaling pathway. *Cell* 100: 229-240.

## CHROMOSOMAL LOCATION

Genetic locus: ZNF423 (human) mapping to 16q12.1.

## PRODUCT

OAZ 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 OAZ shRNA Plasmid (h): sc-38144-SH and OAZ shRNA (h) Lentiviral Particles: sc-38144-V as alternate gene silencing products.

For independent verification of OAZ (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-38144A, sc-38144B and sc-38144C.

## 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

OAZ siRNA (h) is recommended for the inhibition of OAZ 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

OAZ (B-7): sc-514748 is recommended as a control antibody for monitoring of OAZ 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™ Molecular Weight Standards: sc-2035, UltraCruz® 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® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor OAZ gene expression knockdown using RT-PCR Primer: OAZ (h)-PR: sc-38144-PR (20  $\mu$ l, 598 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.