SANTA CRUZ BIOTECHNOLOGY, INC.

BACH2 siRNA (m): sc-37707

BACKGROUND

Members of the small Maf family (MafK, MafF, and MafG) are basic region leucine zipper (bZip) proteins that can function as transcriptional activators or repressors. They dimerize with other proteins and bind DNA to either represse or activate transcription depending on the dimer compositions. BACH1 and BACH2, heterodimerization partners of MafK, are members of a novel family of BTB/POZ-basic region leucine zipper (bZip) factors. BACH1 and BACH2 have significant similarity to each other in BTB domain and Cap "n" collar-type bZip domain but are otherwise divergent. BACH1 appears ubiquitous, whereas BACH2 is restricted to monocytes, neuronal cells and is abundantly expressed in the early stages of B-cell differentiation. BACH2, a 841 amino acid polypeptide, is an Nrf2-related transcription repressor and a tissue-specific partner of the Maf oncoprotein family. In culture cells, BACH2 is localized to the cytoplasm through its C-terminal cytoplasmic localization signal (CLS). Oxidative stressors aborted the CLS activity and induce nuclear accumulation of BACH2, which mediates nucleocytoplasmic communciation to couple oxidative stress and transcription repression in mammalian cells. BACH2 heterodimerizes with MAZR through its BTB/POZ domain to activate transcription. BACH2 also plays an important role in the regulation of B cell development.

REFERENCES

1. Oyake, T., et al. 1996. Bach proteins belong to a novel family of BTB-basic leucine zipper transcription factors that interact with MafK and regulate transcription through the NF-E2 site. Mol. Cell. Biol. 16: 6083-6095.
2. Sasaki, S., et al. 2000. Cloning and expression of human B cell-specific transcription factor BACH2 mapped to chromosome 6q15. Oncogene 19: 3739-3749.
3. Hoshino, H., et al. 2000. Oxidative stress abolishes leptomycin B-sensitive nuclear export of transcription repressor BACH2 that counteracts activation of maf recognition element. J. Biol. Chem. 275: 15370-15376.
4. Kanezaki, R., et al. 2000. Transcription factor BACH1 is recruited to the nucleus by its novel alternative spliced isoform. J. Biol. Chem. 276: 7278-7284.
5. Kobayashi, A., et al. 2000. A combinatorial code for gene expression generated by transcription factor BACH2 and MAZR (MAZ-related factor) through the BTB/POZ domain. Mol. Cell. Biol. 20: 1733-1746.

CHROMOSOMAL LOCATION

Genetic locus: Bach2 (mouse) mapping to 4 A5.

PRODUCT

BACH2 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 BACH2 shRNA Plasmid (m): sc-37707-SH and BACH2 shRNA (m) Lentiviral Particles: sc-37707-V as alternate gene silencing products.

For independent verification of BACH2 (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-37707A, sc-37707B and sc-37707C.

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

BACH2 siRNA (m) is recommended for the inhibition of BACH2 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 BACH2 gene expression knockdown using RT-PCR Primer: BACH2 (m)-PR: sc-37707-PR (20 µl, 578 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Pedersen, C.D., et al. 2009. A comparative study of transfection methods for RNA interference in bone marrow-derived murine dendritic cells. Scand. J. Immunol. 70: 447-456.
2. Nanayakkara, M., et al. 2013. Enterocyte proliferation and signaling are constitutively altered in celiac disease. PLoS ONE 8: e76006.
3. Khamari, R., et al. 2018. Glucose metabolism and NRF2 coordinate the antioxidant response in melanoma resistant to MAPK inhibitors. Cell Death Dis. 9: 325.
4. Wang, S., et al. 2021. Intracellular α-fetoprotein interferes with all-*trans* retinoic acid induced ATG7 expression and autophagy in hepatocellular carcinoma cells. Sci. Rep. 11: 2146.

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.