



bradykinin B1 R siRNA (h): sc-39878

BACKGROUND

Kinins are important biologically active peptides that mediate cardiovascular homeostasis, inflammation and nociception. Bradykinin, the major effector peptide of the kallikrein-kinin system, is regulated by angiotensin-converting enzyme (ACE), which degrades the peptide. Bradykinin normally exerts its effects through the activation of two seven transmembrane G protein-coupled receptors, named B1 and B2. The B2 receptor is constitutively expressed and preferentially binds full length bradykinin. Deletion of the B2 receptor leads to salt-sensitive hypertension and altered nociception in mice. The B1 receptor binds to derivatives of bradykinin and kallidin, which are produced by carboxypeptidase action to generate the products des-Arg9-bradykinin and des-Arg10-kallidin, respectively. The expression of the B1 receptor is inducible by inflammatory mediators, such as bacterial lipopolysaccharide (LPS) and cytokines. The B1 and B2 receptors represent potential therapeutic targets for treatment of inflammatory disorders and cardiovascular diseases.

REFERENCES

1. Trifileff, A., et al. 1993. Kinins and respiratory tract diseases. *Eur. Respir. J.* 6: 576-587.
2. Borkowski, J.A., et al. 1995. Targeted disruption of a B2 bradykinin receptor gene in mice eliminates bradykinin action in smooth muscle and neurons. *J. Biol. Chem.* 270: 13706-13710.

CHROMOSOMAL LOCATION

Genetic locus: BDKRB1 (human) mapping to 14q32.2.

PRODUCT

bradykinin B1 R 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see bradykinin B1 R shRNA Plasmid (h): sc-39878-SH and bradykinin B1 R shRNA (h) Lentiviral Particles: sc-39878-V as alternate gene silencing products.

For independent verification of bradykinin B1 R (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-39878A, sc-39878B and sc-39878C.

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

APPLICATIONS

bradykinin B1 R siRNA (h) is recommended for the inhibition of bradykinin B1 R 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 μ M in 66 μ 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

bradykinin B1 R (F-11): sc-518136 is recommended as a control antibody for monitoring of bradykinin B1 R 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor bradykinin B1 R gene expression knockdown using RT-PCR Primer: bradykinin B1 R (h)-PR: sc-39878-PR (20 μ l, 391 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lee, C.H., et al. 2008. Bradykinin-induced IL-6 expression through bradykinin B2 receptor, phospholipase C, protein kinase C δ and NF κ B pathway in human synovial fibroblasts. *Mol. Immunol.* 45: 3693-3702.
2. Yang, W.H., et al. 2010. Bradykinin enhances cell migration in human chondrosarcoma cells through BK receptor signaling pathways. *J. Cell. Biochem.* 109: 82-92.
3. Matus, C.E., et al. 2016. Activation of the human keratinocyte B1 bradykinin receptor induces expression and secretion of metalloproteases 2 and 9 by transactivation of epidermal growth factor receptor. *Exp. Dermatol.* 25: 694-700.
4. Sun, D.P., et al. 2020. The bradykinin-BDKRB1 axis regulates aquaporin 4 gene expression and consequential migration and invasion of malignant glioblastoma cells via a Ca²⁺-MEK1-ERK1/2-NF κ B mechanism. *Cancers* 12: 667.
5. Li, J., et al. 2024. Bradykinin induces acute kidney injury after hypothermic circulatory arrest through the repression of the Nrf2-xCT pathway. *iScience* 27: 110075.

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.