

BNP siRNA (h): sc-43636

BACKGROUND

Natriuretic peptides comprise a family of three structurally related molecules: atrial natriuretic peptide (ANP), brain natriuretic peptide (BNP) and C-type natriuretic peptide (CNP). ANP and BNP act mainly as cardiac hormones, produced primarily by the atrium and ventricle, respectively, while the gene encoding C-type natriuretic peptide is expressed mainly in the brain. These peptides possess potent natriuretic, diuretic and vasodilating activities and are implicated in body fluid homeostasis and blood pressure control. ANP, BNP and CNP are highly homologous within the 17 residue ring structure formed by an intramolecular disulfide linkage. The genes which encode for ANP and BNP map to human chromosome 1p36.22. The gene which encodes for CNP maps to human chromosome 2q37.1.

REFERENCES

1. Saito, T., et al. 1975. Proceedings: Systemic-pulmonary arteriovenous fistula—a report of a case. *Jpn. Circ. J.* 39: 723.
2. Mair, J., et al. 2001. The impact of cardiac natriuretic peptide determination on the diagnosis and management of heart failure. *Clin. Chem. Lab. Med.* 39: 571-588.
3. Cowie, M.R. and Mendez, G.F. 2002. BNP and congestive heart failure. *Prog. Cardiovasc. Dis.* 44: 293-321.
4. Hobbs, F.D., et al. 2002. Reliability of N-terminal pro-brain natriuretic peptide assay in diagnosis of heart failure: cohort study in representative and high risk community populations. *BMJ* 324: 1498.
5. Hall, C. 2004. Essential biochemistry and physiology of NT-proBNP. *Eur. J. Heart Fail.* 6: 257-260.
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7. Lellouche, N., et al. 2007. Usefulness of preimplantation B-type natriuretic peptide level for predicting response to cardiac resynchronization therapy. *Am. J. Cardiol.* 99: 242-246.
8. Sheen, V., et al. 2007. The use of B-type natriuretic peptide to assess volume status in patients with end-stage renal disease. *Am. Heart J.* 153: 244.e1-244.e5.

CHROMOSOMAL LOCATION

Genetic locus: NPPB (human) mapping to 1p36.22.

PRODUCT

BNP 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 BNP shRNA Plasmid (h): sc-43636-SH and BNP shRNA (h) Lentiviral Particles: sc-43636-V as alternate gene silencing products.

For independent verification of BNP (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-43636A, sc-43636B and sc-43636C.

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

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

BNP (D-8): sc-271185 is recommended as a control antibody for monitoring of BNP 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 κ BP-HRP: sc-516102 or m-IgG κ 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 κ BP-FITC: sc-516140 or m-IgG κ 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 BNP gene expression knockdown using RT-PCR Primer: BNP (h)-PR: sc-43636-PR (20 μ l). 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.