Product Data Sheet

Product Name: BNP (1-32), human
Cat. No.: GP10071

Chemical Properties

Cas. No.	114471-18-0		
Formula	$C_{143}H_{244}N_{50}O_{42}S_4$	M.Wt	3464.04
Solubility	≥ 206.6mg/mL in DMSO	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	BNP (1-32), human		

Protocol

Cell experiment: [1]

Cell lines	Normal adult canine ventricular fibroblasts
Preparation method	The solubility of this peptide in sterile water is >10 mM. Stock solution should be splited and stored at -80°C for several months.
Reaction Conditions	1 μM, 5 min

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Applications	BNP (1 μM) significantly increased the intracellular cGMP, whereas lower concentrations did not alter the cGMP. At this concentration, BNP elevated cGMP levels with a maximal effect at 5 minutes. BNP (1 μM) significantly inhibited the [3H]proline incorporation into the cells by 29%.

Animal experiment: [2]

Animal models	Adult Japanese white rabbits
Dosage form	Injected through the sclera into the vitreous cavity, 100 μM, 4 hours
Applications	At 100 μM, BNP treatment induced a significant decrease in IOP compared with vehicle-treated eyes. In particular, there were statistically significant differences at 4 and 6 hours. In addition, BNP treatment at 10 μM caused a significant decrease in IOP compared to the vehicle-treated eyes, but only at 6 hours after the injection.
Other notes	Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

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References:

[1] Tsuruda T, Boerrigter G, Huntley B K, et al. Brain natriuretic peptide is produced in cardiac fibroblasts and induces matrix metalloproteinases. Circulation research, 2002, 91(12): 1127-1134.

[2] Takashima Y, Taniguchi T, Yoshida M, et al. Ocular hypotensive mechanism of intravitreally injected brain natriuretic peptide in rabbit. Investigative ophthalmology & visual science, 1996, 37(13): 2671-2677.

Background

BNP (1-32), human, a biologically active 32 amino acid, contains a 17 amino acid disulfide ring and the linear 76 amino acid N-terminal peptide (NT), with cardiorenal protective properties[1]. BNP (1-32) binds to the natriuretic peptide type A receptor (NPR-A) and via the second messenger cyclic guanosine monophosphate (cGMP) mediates a variety of actions including vasodilation, natriuresis, suppression of renin secretion, lusitropism, and inhibition of fibrosis[2]. BNP (1-32) is widely used as a biomarker in the diagnosis and prognosis of heart failure and cardiovascular disease [3]. Intravenous infusion of a high dose of BNP (1-32) can lead to a significant increase in plasma free fatty acids[4].

References:
[1] Polak J, Kotrc M, Wedellova Z, et al. Lipolytic effects of B-type natriuretic peptide1–32 in adipose tissue of heart failure patients compared with healthy controls[J]. Journal of

the American College of Cardiology, 2011, 58(11): 1119-1125.
[2] Boerrigter G, Costello-Boerrigter L C, Harty G J, et al. Des-serine-proline brain natriuretic peptide 3–32 in cardiorenal regulation[J]. American journal of physiology-Regulatory, integrative and comparative physiology, 2007, 292(2): R897-R901.
[3] Heublein D M, Huntley B K, Boerrigter G, et al. Immunoreactivity and guanosine 3′, 5′-cyclic monophosphate activating actions of various molecular forms of human B-type natriuretic peptide[J]. Hypertension, 2007, 49(5): 1114-1119.
[4] Bartels E D, Guo S, Kousholt B S, et al. High doses of ANP and BNP exacerbate lipolysis in humans and the lipolytic effect of BNP is associated with cardiac triglyceride content in pigs[J]. Peptides, 2019, 112: 43-47.

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