ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Atrial Natriuretic Peptide (1-28), rat (ANP 1-28)

Cat. # SP-55278-1 Rat Atrial Natriuretic Peptide (1-28) peptide **SIZE**: 500 ug

Atrial natriuretic peptide (ANP), atrial natriuretic factor (ANF), atrial natriuretic hormone (ANH), or atriopeptin, is a powerful vasodilator, and a protein (polypeptide) hormone secreted by heart muscle cells. It is involved in the homeostatic control of body water, sodium, potassium and fat (adipose tissue). It is released by muscle cells in the upper chambers (atria) of the heart (atrial myocytes), in response to high blood pressure. ANP acts to reduce the water, sodium and adipose loads on the circulatory system, thereby reducing blood pressure.

ANP is a 28-amino acid peptide with a 17-amino acid ring in the middle of the molecule. The ring is formed by a disulfide bond between two cysteine residues at positions 7 and 23. ANP is closely related to BNP (brain natriuretic peptide) and CNP (C-type natriuretic peptide), which all share the same amino acid ring. Iinjection of atrial (but not ventricular) tissue extracts into rats caused copious natriuresis.

ANP is produced, stored and released by cardiac myocytes of the atria of the heart. It is released in response to atrial stretch and a variety of other signals induced by hypervolemia, exercise or caloric restriction.[1] The hormone is constitutively expressed in the ventricle in response to stress induced by increased afterload (eg. increased ventricular pressure from aortic stenosis) or injury (eg. myocardial infarction).

ANP is secreted in response to:
Atrial distention, stretching of the vessel walls
Sympathetic stimulation of β-adrenoceptors
Raised sodium concentration (hypernatremia), though sodium concentration is not the direct stimulus for increased ANP secretion
Angiotensin-II
Endothelin, a potent vasoconstrictor
The atria become distended by high extracellular fluid and blood volume, and atrial fibrillation. Notably, ANP secretion increases in response to immersion of the body in water, which causes atrial stretch due to an altered distribution of intravascular fluid. ANP secretion in response to exercise has also been demonstrated in horses

ANP binds to a specific set of receptors - ANP receptors. Receptor-agonist binding causes a reduction in blood volume and therefore a reduction in cardiac output and systemic blood pressure. Lipolysis is increased and renal sodium reabsorption is decreased. The overall effect of ANP on the body is to counter increases in blood pressure and volume caused by the renin-angiotensin system.

In addition to the mammalian natriuretic peptides (ANP, BNP, CNP), two others have been isolated. Tervonen (1998) described a salmon natriuretic peptide, named Salmon cardiac peptide, with similar structure and properties. As well, dendroaspis natriuretic peptide (DNP) was discovered in the venom of the green mamba.

ANP1-28 is produced from 152 aa precursor, ANF (123-150 aa of the152 aa precursor).

Synonyms: ANF, Atrial natriuretic peptide, ANP, Prepronatriodilatin, Contains Auriculin-B, Auriculin-A, Atriopeptin-1, (Atriopeptin I), Atriopeptin-2, (Atriopeptin II), Atriopeptin-3, (Atriopeptin III)
Gene name Name: Nppa

ANP (123-150), rat. It activates neronal guanylate cyclase and reduces the activity of Na+ - K+ ATPase in rat kidney

The peptides were synthesized and purified by RP-HPLC.

Cat# Rat ANP 1-28aa (ANP, ANF or Atrial natriuretic factor

Sequence	Ser-Leu-Arg-Arg-Ser-Ser-Cys-Phe-Gly-Gly-Arg-Ile-Asp-Arg-Ile-Gly-Ala-Gln-Ser-Gly-Leu-Gly-Cys-Asn-Ser-Phe-Arg-Tyr
MW	3062.5
CAS	[88898-17-3]
Formula	C128H205N45O39S2
Disulfide Bridge	Disulfide bridge Cys7-Cys23

Solubility:

Form & Storage of Antibodies/Peptide Control

Storage

Short-term: unopened, vials at -20OC.

Long-term: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20oC or below.
Shipping: room temp for powder

Specificity & Cross-reactivity

Rat ANP1-28aa is 100% conserved in rabbit, mouse, 96% or 1 aa change in sheep, pig, horse, cat, dog, camel, human, 92% (or 2 aa changes) in chicken, 86% in frog,

General References: Yamanaka M (1984) Nature 309-, 719-722; Maki M (1984) Nature 309, 722-724; Seidman CE (1984) 225, 324-326; Kangawa K (1984) Nature, 312, 152-155; Zivin RA (1984) PNAS81, 6325-6329

*This product is for In vitro research use only.

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SP-55278-1 90625A

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