Genorise® Recombinant Human ANP

Catalog #: GR119164

Background

Atrial natriuretic peptide (ANP) is a powerful vasodilator, and a protein hormone secreted by heart muscle cells. It is involved in the homeostatic control of body water, sodium, potassium and adipose tissue. It is released by atrial myocytes in response to high blood volume. ANP acts to reduce the water, sodium and adipose loads on the circulatory system, thereby reducing blood pressure. ANP has exactly the opposite function of the aldosterone secreted by the zona glomerulosa in regard to its effect on sodium in the kidney – that is, aldosterone stimulates sodium retention and ANP generates sodium loss.[1] In cardiac myocytes, ANP is made as a precursor form, i.e. prepro-ANP, a polypeptide of 151 amino acids.[2] After the signal peptide is removed in the endoplasmic reticulum, the 126-amino-acid pro-ANP is stored in the intracellular granules. When the cells are stimulated, pro-ANP is released and converted to the 28-amino-acid C-terminal mature ANP on the cell surface by the cardiac transmembrane serine protease corin.[3] ANP interacts with three receptors including guanylyl cyclase-A (NPR1), guanylyl cyclase-B (NPR2), natriuretic peptide clearance receptor (NPR3). The binding of ANP to its receptor causes the conversion of GTP to cGMP and raises intracellular cGMP. 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. ANP and related peptides are used as biomarkers for cardiovascular diseases such as stroke, coronary artery disease, myocardial infarction and heart failure.[4][5] [6]

References

1. Goetz KL (1988). The American Journal of Physiology. 254 (1 Pt 1): E1–15.
2. Oikawa S et al. (1984) Nature 309(5970):724-726.
3. Yan W, et al. (2000). PNAS 97 (15): 8525–9.
4. Wang TJ, e tal. (2004). The New England Journal of Medicine. 350 (7): 655–63.
5. Barbato E, et al. (2012). International Journal of Cardiology. 155 (2): 311–2.
6. Han ZJ et al (2015) PLoS ONE 10 (8), E0134376

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Description

Size: 10 µg
Source: *E coli* derived
Component: N (Asn) 26-Y (Tyr) 151 (126aa)
Accession # P01160
Predicted Molecular Mass: 14 kDa (monomer)

Specifications

SDS-PAGE: 14 kDa, reducing conditions
Purity: >95%, by SDSPAGE under reducing conditions and visualized by silver stain.
Formulation: Lyophilized from a 0.2 µm filtered PBS with BSA as carrier protein at 5 µg/ µg.

Preparation and Storage

Reconstitution: Reconstitute at 100 µg/mL in sterile PBS.
Shipping: The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage: Use a manual defrost freezer and avoid repeated freeze thaw cycles.

- 6 months from date of receipt, -20 to -70°C as supplied.
- 3 months, -20 to -70°C under sterile conditions after reconstitution.

DECLARATION

THIS REAGENT IS FOR IN VITRO LABORATORY TESTING AND RESEARCH USE ONLY. DO NOT USE IT FOR CLINICAL DIAGNOSTICS. DO NOT USE OR INJECT IT IN HUMANS AND ANIMALS.

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