Interest in any of the products, request or order them at Bio-Connect Diagnostics.
IMMUNOASSAYS for NATRIURETIC PEPTIDES

**proANP (1-98) ELISA**
Enzyme Immunoassay for the quantitative determination of human and rodent proANP (1-98)

Cat.no.: BI-20892 | 12 x 8 tests
conventional 96well ELISA format

**BNP Fragment EIA**
Enzyme Immunoassay for the quantitative determination of human BNP Fragment (8-29)

Cat.no.: BI-20852W | 12 x 8 tests
conventional 96well ELISA format

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**Why measure prohormones?**
BNP Fragment and proANP (1-98) are stable molecules and circulate in high concentrations.

**Why measure with Biomedica Immunoassays?**
- Low sample volume – no extraction, direct measurement
- Validated in preclinical and clinical studies
- Human serum based calibrators
- Clear separation - healthy controls/elevated levels
- Reproducible and reliable results
- Robust assays – automated protocols
- Cost efficient
- Manufactured in accordance with GMP/GLP guidelines
- Flexible solutions for your project

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**proANP (1-98) Biomedica cat.no.**
BI-20892

**Alpha ANP**
= proANP (99-126)
(biologically active)

**proBNP (1-108) Biomedica cat.no.**
BI-20852W

**proBNP (1-76)**

**BNP 32**
= proBNP (77-108)
(biologically active)
proANP (1-98) ELISA

Assay Characteristics

<table>
<thead>
<tr>
<th>Reference data</th>
<th>Plasma median = 1.45 nmol/l (n=53). Each laboratory should establish own reference values.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard range</td>
<td>0-10 nmol/l (6 standards and 1 control in human serum matrix, lyophilized)</td>
</tr>
<tr>
<td>Sample volume</td>
<td>Sample volume 10 μl plasma (EDTA or Heparin), urine, serum or cell culture supernatant</td>
</tr>
<tr>
<td>Detection Limit</td>
<td>(0 nmol/l + 3 SD): 0.050 nmol/l</td>
</tr>
<tr>
<td>Incubation time</td>
<td>3 h / 30 min</td>
</tr>
<tr>
<td>Cross reactivity</td>
<td>proANP (1-30) &lt;1%, proANP (31-67) &lt;1%, proANP (79-98) &lt;1%, alpha ANP (99-126) &lt;1%,</td>
</tr>
<tr>
<td></td>
<td>proBNP (8-29) &lt;1%, proBNP (32-57) &lt;1%, proCNP (1-19) &lt;1%, proCNP (30-50) &lt;1%,</td>
</tr>
<tr>
<td></td>
<td>proCNP (51-97) &lt;1%</td>
</tr>
<tr>
<td></td>
<td>The assay also detects mouse and rat proANP (1-98).</td>
</tr>
</tbody>
</table>

Assay Principle

![Assay Principle Diagram]

Precision

<table>
<thead>
<tr>
<th>Intra-Assay (n=10)</th>
<th>Inter-Assay (n=5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (nmol/l)</td>
<td>0.66</td>
</tr>
<tr>
<td>SD (nmol/l)</td>
<td>0.013</td>
</tr>
<tr>
<td>CV%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Technical Performance

Typical standard curve of the Biomedica ELISA for proANP (1-98)

![Standard Curve Graph]

Standards: Synthetic human proANP (1-98) in human serum matrix: 0; 0.63; 1.25; 2.5; 5; 10 nmol/l
**Assay Characteristics**

<table>
<thead>
<tr>
<th></th>
<th>Typical standard curve of the Biomedica competitive EIA for BNP Fragment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Values from apparently healthy individuals (n=76)</strong></td>
<td>In a panel of blood donors the median was 392 pmol/l. Each laboratory has to establish its own reference range for the samples under investigation.</td>
</tr>
<tr>
<td><strong>Standard range</strong></td>
<td>0 to 6,400 pmol/l</td>
</tr>
<tr>
<td><strong>Sample volume</strong></td>
<td>30 μl human serum or plasma (Citrate, EDTA or Heparin)</td>
</tr>
<tr>
<td><strong>Detection Limit</strong></td>
<td>1.71 pmol/l at 95% B/B0</td>
</tr>
<tr>
<td><strong>Incubation time</strong></td>
<td>overnight / 20 min</td>
</tr>
</tbody>
</table>

**Precision**

<table>
<thead>
<tr>
<th></th>
<th>Intra-Assay: 2 samples of known concentrations were tested 3 times. Inter-Assay: 2 samples of known concentrations were tested in 2 assays from 2 different operators.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intra-Assay (n=3)</strong></td>
<td>Sample 1</td>
</tr>
<tr>
<td><strong>Mean (pmol/l)</strong></td>
<td>763</td>
</tr>
<tr>
<td><strong>SD (pmol/l)</strong></td>
<td>43</td>
</tr>
<tr>
<td><strong>CV%</strong></td>
<td>6%</td>
</tr>
</tbody>
</table>

**Assay Principle**

![Assay Principle Diagram](image)

1. precoated AB
2A. CAL / SAMPLE / CTRL
2B. CONJ
3. SUB
4. STOP
5. SUB / ENZYME CATALYZED COLOUR CHANGE

**Technical Performance**

Typical standard curve of the Biomedica competitive EIA for BNP Fragment

![Typical Standard Curve](image)

**Standards:** Recombinant BNP Fragment in human serum matrix: 0; 200; 400; 800; 1,600; 3,200; 6,400 pmol/l
NATRIURETIC PEPTIDES - Areas of Interest

ANP and BNP exert diuretic, natriuretic, and vasodilatory effects and thus contribute to the regulation of cardiovascular and body-fluid homeostasis and blood pressure control: These effects result from interference with the renin-angiotensin-system, endothelins and sympathetic nervous system.

ANP appears to be a cardiovascular risk factor, particularly in the context of hypertension, stroke, obesity, and metabolic syndrome. BNP is predictive of cardiac dysfunction, in particular left ventricular dysfunction, and is a useful marker of future outcomes in patients with acute coronary syndromes and congestive heart failure.

Clinical
- Cardiac impairment, acute myocardial infarction (left ventricular dysfunction)
- Risk stratification in heart failure patients with normal NT-proBNP levels
- Renal failure
- Obesity and diabetes
- Various forms of secondary hypertension
- Therapy monitoring

PreClinical
- proANP (1-98) is an excellent candidate as a biomarker of cardiac hypertrophy in preclinical toxicology investigations: detection of drug-induced hemodynamic stress resulting in cardiac hypertrophy in rodents.

proANP (1-98) Literature
- Transcoronary Transplantation of Functionally Competent BMCs Is Associated With a Decrease in Natriuretic Peptide Serum Levels and Improved Survival of Patients With Chronic Postinfarction Heart Failure: Results of the TOPCARE-CHD Registry. Assmus B et al, Circ Res 2007; 100: 1234-1241
- Increased plasma levels of NT-proANP and NT-proBNP as markers of cardiac dysfunction in septic patients. Hoffmann U et al Clin Lab 2005; 51(7-8): 373-379

BNP Fragment Literature
- Comparison of Pleural Fluid N-Terminal Pro-Brain Natriuretic Peptide and Brain Natriuretic-32 Peptide Levels. Long AC et al, Chest 2010; 137: 1369-1374
- N-Terminal Pro-B-Type Natriuretic Peptide as an Indicator of Possible Cardiovascular Disease in Severely Obese Individuals: Comparison with Patients in Different Stages of Heart Failure. Hermann-Arnhof K et al, Clinical Chemistry 2005; 51:138-143
- Natriuretic peptides/cGMP/cGMP-dependent protein kinase cascades promote muscle mitochondrial biogenesis and prevent obesity. Miyashita K et al, Diabetes 2009; 58: 2880-2892