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# ENDOTHELIN • BIG ENDOTHELIN-1 • proANP • NT-proBNP • NT-proCNP

## Enzyme immunoassays for the quantitative determination of Endothelin, Big Endothelin-1, proANP, BNP Fragment, NT-proBNP and NT-proCNP in human samples.

### Area of interest

- severe cardiac disease
- heart failure death
- myocardial infarction
- renal disorders
- hypertension
- transplantation

(Big) Endothelin is a potent vasoconstrictor and produced by vascular endothelial cells. Accordingly it has a wide tissue distribution. Both Big ET and ET are strong independent predictors of survival in patients with congestive heart failure, and identify a population with a very high risk of mortality. Big ET and ET are valuable parameters in the supervision and monitoring of clinical studies.

The natriuretic peptides 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.

The gene encoding CNP is expressed in various tissues, with particularly high concentrations in the vascular endothelium and chondrocytes, inducing vasorelaxation and vascular remodeling, as well as regulating bone growth. The prognostic value of NT-proCNP in critically ill patients has been reported with highest levels observed in sepsis patients.

### LITERATURE

Superiority of big endothelin-1 and endothelin-1 over natriuretic peptides in predicting survival in severe congestive heart failure: a 7-year follow-up study. *Van Beneden R et al., J Card Fail, 2004; 10(6): 490-495*

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*

An Initial Characterization of N-Terminal-Proatrial Natriuretic Peptide in Serum of Sprague Dawley Rats. *Colton HM et al., Toxicol Sci, 2011; 120: 262-268*

Brain Natriuretic Peptide Predicts Functional Outcome in Ischemic Stroke. *Rost NS et al., Stroke 2012; 43: 441-445*

Depression Predicts Elevated Endothelin-1 in Patients With Coronary Artery Disease. *Burg MM et al., Psychosom Med 2011; 73: 2-6*

Prognostic value of circulating amino-terminal pro-C-type natriuretic peptide in critically ill patients. *Koch A et al., Crit Care, 2011; 15(1): R45*

High Serum Levels of Endothelin-1 Predict Severe Cerebral Edema in Patients With Acute Ischemic Stroke Treated With t-PA. *Moldes O et al., Stroke, 2008; 39: 2006-2010*

Urine endothelin-1 levels as a predictor of renal scarring in children with urinary tract infections. *A Yilmaz A et al., Clin Nephrol, 2012; 77(3): 219-224*

## Assay characteristics

Samples can be measured directly in these assays without further extraction or pre-dilution steps.

### proANP ELISA (BI-20892)

Method: Sandwich ELISA, HRP/TMB  
 Sample type: plasma, serum, urine, cell culture supernatants (human, rodents)  
 Sample size: 10 µl / test, 12x8 tests  
 Standard range: 0 – 10 nmol/l  
 Detection limit: 0.05 nmol/l  
 Incubation time: 3 h / 30 min

### BNP Fragment EIA (BI-20852W)

Method: competitive EIA, HRP/TMB  
 Sample type: plasma, serum  
 Sample size: 30 µl / test, 12x8 tests  
 Standard range: 0 – 6,400 pmol/l  
 Detection limit: 130 pmol/l at 95% B/B0  
 Incubation time: overnight / 20 min

### NT-proCNP ELISA (BI-20872)

Method: Sandwich ELISA, HRP/TMB  
 Sample type: plasma, serum  
 Sample size: 50 µl / test, 12x8 tests  
 Standard range: 0 – 40 pmol/l  
 Detection limit: 0.55 pmol/l  
 Incubation time: 4 h / 30 min

### ENDOTHELIN ELISA (BI-20052)

Method: Sandwich ELISA, HRP/TMB  
 Sample type: plasma, serum, urine, cell culture supernatants, saliva  
 Sample size: 50 µl / test, 12x8 tests  
 Standard range: 0 – 10 fmol/ml  
 Detection limit: 0.02 fmol/ml  
 Incubation time: overnight / 1 h / 30 min

### BIG ENDOTHELIN-1 ELISA (BI-20082H)

Method: Sandwich ELISA, HRP/TMB  
 Sample type: plasma, serum  
 Sample size: 50 µl / test, 12x8 tests  
 Standard range: 0 – 3 pmol/l  
 Detection limit: 0.01 pmol/l  
 Incubation time: 4 h / 1 h / 30 min

### NT-proBNP ELISA (SK-1204)\*

Method: Sandwich ELISA, HRP/TMB  
 Sample type: plasma, serum  
 Sample size: 50 µl / test, 12x8 tests  
 Standard range: 0 – 640 pmol/l  
 Detection limit: 3 pmol/l  
 Incubation time: 3 h / 30 min

\* For local availability of NT-proBNP ELISA please contact your distributor.

All Biomedica ELISAs are fully validated and contain human based calibrators and controls.