Pacific Biomarkers
The Value of Expertise

PAP (Plasmin-alpha2-antiplasmin Complex)

Analyte: Plasmin α2-antiplasmin complex

Specimen Type: EDTA Plasma with inhibitors, P100 Plasma; Please contact PBI for collection instructions

Optimum Volume: 0.2 mL

Stability:

2-8 Degrees C	-20 Degrees C	-70 Degrees C
1 day	1 month	1 year

Reporting Units: ng/mL

Method: ELISA

Biological or Clinical Significance:

The removal of polymerized fibrin from the vascular system by proteolytic degradation (fibrinolysis) is important for maintaining the hemostatic balance. The key enzyme of the fibrinolytic system is plasmin. Besides its fibrinolytic function in the plasma, plasmin also plays a central role in the activation of degenerative (e.g. atherosclerosis via metalloproteinases) and inflammatory (e.g. complement system) processes in the arterial wall and other tissues.

Plasmin is effectively regulated in the plasma by its inhibitor α 2-antiplasmin (single chain 70 kD), which forms the plasmin/ α 2-antiplasmin complex (PAP). The formation of the PAP complex is a two step process. First, the lysine binding sites of plasmin and the carboxyl-terminal region of α 2 -antiplasmin form a reversible complex. In the second step, cleavage of a specific peptide bond of the inhibitor leads to the formation of an irreversible complex. This complex is relatively stable, and is quickly removed from the blood during circulation through the liver. However, the complex does slowly breakdown and under some conditions, in vitro inactive α 2-antiplasmin and active plasmin are regenerated.

Defects or deficiencies in a component of the fibrinolytic system can lead to thromboembolic diseases. Conversely, hyperfibrinolytic states increase the risk of hemorrhage through accelerated degradation of fibrinogen. The plasma PAP concentration is thus a measure of the current activity of the fibrinolytic system. Elevated PAP concentrations have been reported in patients with disseminated intravascular coagulation (DIC). An increase in PAP concentrations has also been observed during fibrinolytic therapies. Due to the complement and collagenase (metalloproteinase) activating functions of plasmin, PAP has also been found to be increased in patients with inflammatory rheumatic diseases. In addition, PAP level has been shown to be independently associated with risk for cardiovascular death.

Principle of Test Method:

The PAP assay is a sandwich enzyme immunoassay for the in vitro determination of PAP in human plasma

References:

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