

Division of Laboratory Medicine

Biochemistry

Type I Procollagen N-terminal Peptide; P1NP

Monitoring patients on treatment for osteoporosis

Pseudonyms: Procollagen type 1 amino-terminal propeptide.

General information

Collection container: Serum with gel separator (Sarstedt brown top, 4.9mL adults /1.1 mL paediatrics) or Serum (Sarstedt white top, 1.2 mL paediatrics only) or Lithium heparin plasma (Sarstedt orange top, 4.9mL adults /1.2 mL paediatrics)

Type and volume of sample: 1.0 mL whole blood is required as a minimum volume.

Specimen transport/special precautions: The tubes should be thoroughly mixed before transport to the lab.

Laboratory information

Method principle: PINP is analysed on an automated instrument using a chemiluminescent immunoassay.

Biological reference ranges: 27-128 µg/L

Turnaround time: 10 days

Clinical information

Type 1 collagen is the major collagen in the body and is mainly found in mineralised bone. It has a triple helical structure consisting of one $\alpha 1$ and two $\alpha 2$ chains which are linked by disulphide bonds. The molecule is synthesised as procollagen which is proteolytically cleaved to remove both the N- and C-terminal parts of the molecule prior to the assembly of the remainder into the collagen matrix. The N- and C-terminals are released into the circulation stoichiometrically and thus reflect the synthesis of new type 1 collagen. A number of studies have demonstrated a good correlation between serum levels of PINP and bone density and it is recommended for use in the assessment of bone turnover in osteoporosis. PINP is heterogeneous and exists in 2 antigenic forms with different molecular weights. The IDS ISYS assay is specific for the larger intact propeptide which is catabolised by hepatic endothelial cells. The smaller propeptide is cleared by the kidneys but does not cross react in this assay.

Factors known to significantly affect the results: Grossly haemolysed samples are unsuitable for analysis

(Last updated February 2016)