

Procollagen Type 1 N-Terminal Propeptide

FOR MONITORING BONE FORMATION AND ANTIRESORPTIVE THERAPIES

Test Highlights

PINP is the most effective marker of bone formation and is particularly useful for monitoring bone-formation and antiresorptive therapies.

Clinical Background

- Osteoporosis is extremely prevalent in the United States, with 1.5 million fractures and 37,000 deaths per year attributable to the disease.
- Breast and prostate cancer metastases to bone are common.
- Patient response to therapy is variable. Laboratory monitoring of bone formation and resorption markers can help guide therapeutic decisions.

Pathophysiology

The PINP concentration is directly proportional to the amount of new collagen laid down during bone formation.

Indications for Ordering

- To obtain a baseline level prior to antiresorptive or bone-formation therapy.
- To monitor the effectiveness of antiresorptive or bone-formation therapy.
- Ideally, this test should be used in conjunction with a marker of bone resorption, such as cross-linked N-telopeptide.
- To obtain evidence of bone metastases.

Interpretation

- Concentrations are increased in patients with various bone diseases, including bone metastases and therapies, which are characterized by increased osteoblastic activity.
- If the pretreatment baseline level of bone formation is already high, then therapy to increase bone formation further may not be warranted.
- If the relative levels of bone formation and bone resorption do not improve while on therapy, then another therapy may be warranted.

Limitations

This test is intended for monitoring therapy and not for diagnosis of osteoporosis and bone metastases.

Methodology

Radioimmunoassay

Related Tests

- Synthesis
 - Bone-Specific Alkaline Phosphatase ([0070053](#))
 - Osteocalcin by Electrochemiluminescent Immunoassay ([0020728](#))
 - Note that PINP is a more effective marker of bone formation than either bone-specific alkaline phosphatase (BSAP) or osteocalcin.
- Breakdown
 - N-Telopeptide, Cross-Linked, Urine ([0070062](#))
 - N-Telopeptide, Cross-Linked, Serum ([0070500](#))
 - Deoxypyridinoline Crosslinks ([0070212](#))
 - Pyridinium Crosslinks (Total) ([0070213](#))
 - C-Telopeptide, Beta-Cross-Linked, Serum ([0070416](#))

References

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2. Fink E, et al. Differences in the capacity of several biochemical bone markers to assess high bone turnover in early menopause and response to alendronate therapy. *Osteoporos Int* 2000;11:295-303.
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8. Rosenquist C, et al. Measurement of a more stable region of osteocalcin in serum by ELISA with two monoclonal antibodies. *Clin Chem* 1995;41:1439-1445.
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Test Information

0070236

Procollagen Type I Intact N-Terminal Propeptide

For specific collection, transport, and testing information, refer to the ARUP Web site at www.aruplab.com.

For information on test selection, ordering, and interpretation, refer to ARUP Consult® at www.arupconsult.com.