

CTX (C-Terminal Telopeptides Type I Collagen), Serum/Plasma ECL

Analyte: C-terminal telopeptides of type I collagen

Specimen Type: Serum, EDTA Plasma

Optimum Volume: 0.5 mL

Stability:

2-8 Degrees C	-20 Degrees C	-70 Degrees C
1d ser;6d pl	3 years	3 years

Reporting Units: ng/mL

Method: Electrochemiluminescence

Biological or Clinical Significance:

Beta C-terminal telopeptide (β -CTX) is a specific resorption marker for degradation of bone type I collagen by osteoclasts. More than 90% of organic bone matrix consists of type I collagen, which is primarily synthesized in bone. Bone is constantly undergoing a metabolic process called remodeling. This includes a degradation process, (bone resorption) mediated by the action of osteoclasts and a building process, (bone formation) mediated by the action of osteoblasts. In abnormal states of bone metabolism, this process becomes imbalanced. When the rate of resorption exceeds formation (such as in osteoporosis), loss of bone mass occurs with a consequent increase in susceptibility to fractures. Resorption also leads to an increase in the circulation of type I collagen fragments.

Especially relevant collagen type I fragments are the C-terminal telopeptides (CTX). In the C-terminal telopeptides the α -aspartic acid present converts to the β -form of aspartic acid as the bone ages (β -CTX). These isomerized telopeptides are specific for the degradation of type I collagen dominant in bone.

Elevated serum concentrations of isomerized C-terminal telopeptides of type I collagen have been reported for patients with increased bone resorption. The serum levels return to normal during resorption-inhibiting therapy.

Principle of Test Method:

The serum CTX assay is a sandwich immunoassay using electrochemiluminescent detection.

References:

1. Qvist, P, Christgau, S, Pedersen, et. al. Circadian variation in the serum concentration of C-terminal telopeptide of type I collagen (serum CTX): Effects of gender, age, menopausal status, posture, daylight, serum cortisol, and fasting. *Bone* 2002; 31:57-61.
2. Bergmann P., Body JJ, Boonen S., et. al Evidence-based guidelines for the use of biochemical markers of bone turnover in the selection and monitoring of bisphosphonate treatment in osteoporosis: a consensus document of the Belgian Bone Club. *Int J Clin Pract.* 2009 Jan;63(1):19-26.