

OC (Osteocalcin) - ECL

Analyte: Osteocalcin

Specimen Type: Serum, EDTA Plasma, Inquire for additional option(s)

Optimum Volume: 0.5 mL

2-8°C

-20°C

-70°C

1d, 4d *

3 months

2 years

Reporting units: ng/mL

Method: Electrochemiluminescence

Biological or Clinical Significance:

Osteocalcin, a 49 amino acid peptide is the major noncollagen protein of bone. It contains three gamma-carboxyglutamic acid (GLA) residues at positions 17, 21 and 24 and is, therefore, also known as bone gla-protein or BGP. The exact biological function of osteocalcin is not known but the three gamma-carboxyglutamic acid residues confer on it a very strong ability to bind hydroxyapatite and calcium.

Vitamin K is essential for the biosynthesis of osteocalcin which is stimulated by 1, 25-dihydroxyvitamin D. Osteocalcin is synthesized by osteoblasts during the process of bone formation and mostly incorporated into bone matrix with some escaping into the blood. The circulating level of total osteocalcin is primarily composed of a large N-terminal mid-region fragment resulting from the cleavage of the intact molecule and the intact molecule itself. Since the half-life in blood is relatively short (about 5 minutes) the osteocalcin level in blood reflects new protein synthesis and therefore its measurement provides a valuable tool for assessing skeletal metabolism. As a product unique to the osteoblast, it also represents the activity of the cell responsible for the formation of bone.

Principle of Test Method:

The OC assay is an automated sandwich immunoassay employing electrochemiluminescent detection.

* Refrigerated stability is 1 day in serum and 2 days in EDTA plasma.

References:

1. Carlson TH, Leary ET, Wu C, Kuo MM, Aggoune T, Chu J, and McLaughlin K. Long-term stability of osteocalcin at -70°C determine by the Elecsys 2010 analyzer. Clin Chem, 50(Suppl): A109, (2004).
2. Leary ET, Wu C, McLaughlin K, Carlson TH. N-MID Osteocalcin measured by Roche Elecsys is a stable analyte. JBMR 2005; 20: S227.