Osteocalcin

Description	Non-collagenous protein of the bone extracellular matrix; Marker of bone formation / turnover.
Indication	Monitoring response to anti-resorptive therapy and corticosteroid effects on bone.
Additional Info	Osteocalcin is a vitamin K dependent, bone-specific calcium-binding protein. During bone synthesis, osteocalcin is produced by the osteoblasts, with its expression stimulated by vitamin D3. After release from osteoblasts, osteocalcin is assimilated into the bone matrix and also secreted into the bloodstream. Therefore the level in serum is related to osteoblast function and can be altered in various disorders of bone metabolism, e.g. osteoporosis, primary and secondary hyperparathyroidism, Paget's disease of bone and corticosteroid therapy. A baseline pre-treatment level is required if assessing response to anti-resorptive therapy.
Concurrent Tests	N/A
Dietary Requirements	N/A
Interpretation	In the process of matrix synthesis, some osteocalcin is released and circulates in blood with a short half-life determined mainly by renal clearance. Therefore levels may be misleading in renal failure. Osteocalcin is increased in diseases resulting in coupled high bone turnover with increased osteoblast activity such as Paget's disease, thyrotoxicosis and some patients with primary hyperparathyroidism. Osteocalcin is decreased in patients with low bone turnover such as some types of osteoporosis in renal failure and adynamic bone. Osteocalcin is a particularly sensitive marker of corticosteroid effects on osteoblasts and is markedly decreased in patients receiving acute high dose steroids. In patients with low vitamin K and vitamin D intake, osteocalcin can be decreased.
Collection Conditions	EDTA plasma separated within an hour of collection. RLBUHT users must transport the sample to the lab **immediately**. Sample should be stored frozen at -20°C prior to dispatch and sent frozen. Minimum sample requirement - 0.5 ml of EDTA plasma. Haemolysed samples are unsuitable for analysis.
Frequency of testing	As required.