Setting the standard for clinical research.
THE BONE MARKER ELISA PRODUCTS

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ELISAs for the quantitative determination of Sclerostin, Dickkopf-1, Osteoprotegerin, free soluble RANKL and FGF23 (C-terminal) in human samples.

MARKERS OF BONE TURNOVER – REGULATION MOLECULES

sRANKL, soluble receptor activator of nuclear factor (NF)-κB ligand, is the main stimulatory factor for the formation of mature osteoclasts and is essential for their survival. RANKL activates its specific receptor RANK that is located on osteoclasts and dendritic cells.

Osteoprotegerin (OPG) acts as a soluble secreted receptor for RANKL and inhibits osteoclast development. OPG is the counterpart of sRANKL.

Sclerostin serum levels are significantly elevated in postmenopausal women, in patients with immobilization-induced bone loss, and in patients with multiple myeloma. Circulating sclerostin serum levels are reduced by intermittent PTH therapy and estrogen. The development of neutralizing antibodies to DKK-1 and sclerostin are found to be promising therapeutic agents in diseases with elevated bone resorption.

Dickkopf-1 (DKK-1) and sclerostin are potent inhibitors of Wnt signalling and play an important role in osteoblast maturation. Increased circulating DKK-1 levels have been reported in clinical situations characterized by markedly depressed bone formation as in multiple myeloma, or by increased focal osteolysis from multiple myeloma, and bone metastases from breast, prostate or lung cancer, and in rheumatoid arthritis.

FGF23 (fibroblast growth factor 23) is a 32 kDa protein with 251 amino acids that is proteolytically processed between arginine and serine to generate N-terminal and C-terminal fragments. FGF23 is mainly secreted by osteocytes and controls phosphate and 1,25(OH)2 vitamin D homeostasis.

All Biomedica ELISAs are fully validated and contain human based calibrators and controls.

ASSAY CHARACTERISTICS

FREE SOLUBLE RANKL HIGH SENSITIVITY ELISA (BI-20462) €
Method Sandwich ELISA, HRP/TMB
Sample type serum, Heparin plasma
Sample size 150 µl / test, 12x8 tests
Standard range 0 – 2 pmol/l
Detection limit 0.01 pmol/l
Incubation time 2h / overnight / 1h / 30min

OSTEOPROTEGERIN ELISA (DAY TEST) (BI-20403) €
Method Sandwich ELISA, HRP/TMB
Sample type plasma, serum
Sample size 20 µl / test, 12x8 tests
Standard range 0 – 20 pmol/l
Detection limit 0.07 pmol/l
Incubation time 3h / 1h / 30min

SCLEROSTIN ELISA (HIGH SENSITIVITY) (BI-20492)
Method Sandwich ELISA, HRP/TMB
Sample type plasma, serum
Sample size 20 µl / test, 12x8 tests
Standard range 0 – 240 pmol/l
Detection limit 2.6 pmol/l
Incubation time overnight / 1h / 30min

DICKKOPF-1 ELISA (DAY TEST, no sample predilution!) (BI-20413) €
Method Sandwich ELISA, HRP/TMB
Sample type serum, cell culture supernatants
Sample size 20 µl / test, 12x8 tests
Standard range 0 – 160 pmol/l
Detection limit 1.7 pmol/l
Incubation time 2h / 1h / 30min

FGF23 (C-terminal) ELISA (BI-20702) €
Method Sandwich ELISA, HRP/TMB
Sample type serum, plasma
Sample size 50 µl / test, 12x8 tests
Standard range 0 – 20 pmol/l
Detection limit 0.08 pmol/l
Incubation time overnight / 1h / 30min
Long-term treatment with raloxifene, but not bisphosphonates, reduces circulating sclerostin levels in postmenopausal women. Chung YE et al., Osteoporos Int, 2012; 23(4): 1235–1243

Circulating Levels of Sclerostin Are Increased in Patients with Type 2 Diabetes Mellitus. García-Martín A et al., J Clin Endocrinol Metab, 2012; 97: 234–241

Sclerostin and Its Association with Physical Activity, Age, Gender, Body Composition, and Bone Mineral Content in Healthy Adults. Amrein K et al., J Clin Endocrinol Metab, 2012; 97: 148–154


Cortical Bone Status Is Associated with Serum Osteoprotegerin Concentration in Men: The STRAMBO Study. Szułc P et al., J Clin Endocrinol Metab, 2011; 96: 2216–2226

Baseline RANKL:OPG ratio and markers of bone and cartilage degradation predict annual radiological progression over 11 years in rheumatoid arthritis. van Tuy L et al., Ann Rheum Dis, 2010; 69: 1623–1628


The RANKL/RANK/OPG Signaling Pathway Mediates Medial Arterial Calcification in Diabetic Charcot Neuroarthropathy. Ndip A et al., Diabetes, 2011; 60: 2187–2196

Low circulating Dickkopf-1 and its link with severity of spinal involvement in diffuse idiopathic skeletal hyperostosis. Senolt L et al., Ann Rheum Dis, 2012; 71: 71–74

Sclerostin and Insulin Resistance in Prediabetes: Evidence of a Cross Talk Between Bone and Glucose Metabolism. Daniele G et al., Diabetes Care, 2015; 38: 1509–1517

