

# osteocalcin (FL-100): sc-30044

## BACKGROUND

Bone  $\gamma$ -carboxyglutamic acid (Gla) protein, known as BGLAP, BGP or osteocalcin, is an abundant, non-collagenous protein component of bone that is produced by osteoblasts. In mice, osteocalcin is composed of a cluster of three genes known as OG1, OG2 and ORG, all of which can be found within a 23 kb span of genomic DNA. Human osteocalcin is a highly conserved, 46-50 amino acid, single chain protein that contains three vitamin K-dependent  $\gamma$ -carboxyglutamic acid residues. Osteocalcin appears transiently in embryonic bone at the time of mineral deposition, where it binds to hydroxyapatite in a calcium-dependent manner. In addition, osteocalcin is one of the most abundant, non-collagenous proteins found in mineralized adult bone. Genetic variation at the osteocalcin locus on chromosome 1q22 impacts postmenopausal bone mineral density (BMD) levels and may predispose some women to osteoporosis.

## REFERENCES

1. Kasai, R., et al. 1994. Production and characterization of an antibody against the human bone GLA protein (BGP/osteocalcin) propeptide and its use in immunocytochemistry of bone cells. *Bone Miner.* 25: 167-182.
2. Chenu, C., et al. 1994. Osteocalcin induces chemotaxis, secretion of matrix proteins and calcium-mediated intracellular signaling in human osteoclast-like cells. *J. Cell Biol.* 127: 1149-1158.

## CHROMOSOMAL LOCATION

Genetic locus: BGLAP (human) mapping to 1q22.

## SOURCE

osteocalcin (FL-100) is a rabbit polyclonal antibody raised against amino acids 1-100 representing full length osteocalcin of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

osteocalcin (FL-100) is recommended for detection of osteocalcin of human, and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for osteocalcin siRNA (h): sc-40790, osteocalcin shRNA Plasmid (h): sc-40790-SH and osteocalcin shRNA (h) Lentiviral Particles: sc-40790-V.

Molecular Weight of osteocalcin: 6 kDa.

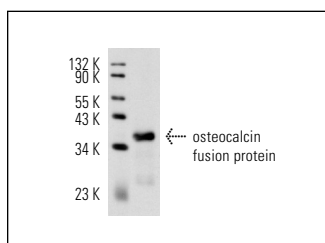
## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

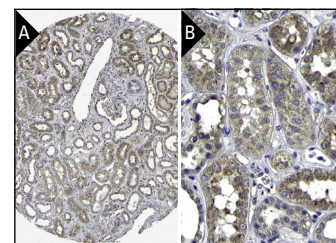
## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## DATA



osteocalcin (FL-100): sc-30044. Western blot analysis of human recombinant osteocalcin fusion protein.



osteocalcin (FL-100): sc-30044. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubuli at low (A) and high (B) magnification. Kindly provided by The Swedish Human Protein Atlas (HPA) program.

## SELECT PRODUCT CITATIONS

1. Bobryshev, Y.V., et al. 2008. Spatial distribution of osteoblast-specific transcription factor Cbfa1 and bone formation in atherosclerotic arteries. *Cell Tissue Res.* 333: 225-235.
2. Drago-Ferrante, R., et al. 2008. Low doses of paclitaxel potently induce apoptosis in human retinoblastoma Y79 cells by up-regulating E2F1. *Int. J. Oncol.* 33: 677-687.
3. Karaöz, E., et al. 2011. Human dental pulp stem cells demonstrate better neural and epithelial stem cell properties than bone marrow-derived mesenchymal stem cells. *Histochem. Cell Biol.* 136: 455-473.
4. Karaoz, E., et al. 2011. Bone marrow-derived mesenchymal stem cells co-cultured with pancreatic islets display  $\beta$  cell plasticity. *J. Tissue Eng. Regen. Med.* 5: 491-500.
5. Yalvaç, M.E., et al. 2011. Differentiation and neuro-protective properties of immortalized human tooth germ stem cells. *Neurochem. Res.* 36: 2227-2235.
6. Adas, G., et al. 2011. Mesenchymal stem cells improve the healing of ischemic colonic anastomoses (experimental study). *Langenbecks Arch. Surg.* 396: 115-126.
7. Karaoz, E., et al. 2012. Reduction of lesion in injured rat spinal cord and partial functional recovery of motility after bone marrow derived mesenchymal stem cell transplantation. *Turk. Neurosurg.* 22: 207-217.
8. Dogan, A., et al. 2012. Differentiation of human stem cells is promoted by amphiphilic pluronic block copolymers. *Int. J. Nanomedicine* 7: 4849-4860.



Try **osteocalcin (G-5): sc-365797** or **osteocalcin (C-8): sc-74495**, our highly recommended monoclonal alternatives to osteocalcin (FL-100). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **osteocalcin (G-5): sc-365797**.