

osteocalcin (FL-95): sc-30045

BACKGROUND

Bone γ -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 3 vitamin K-dependent γ -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 1q impacts postmenopause bone mineral density (BMD) levels and may predispose some women to osteoporosis.

REFERENCES

1. 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.
2. Desbois, C., et al. 1994. The mouse osteocalcin gene cluster contains three genes with two separate spatial and temporal patterns of expression. *J. Biol. Chem.* 269: 1183-1190.
3. 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.

CHROMOSOMAL LOCATION

Genetic locus: Bglap1/Bglap2/Bglap-rs1 (mouse) mapping to 3 F1.

SOURCE

osteocalcin (FL-95) is a rabbit polyclonal antibody raised against amino acids 1-95 representing full length osteocalcin of mouse origin.

PRODUCT

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

APPLICATIONS

osteocalcin (FL-95) is recommended for detection of osteocalcin of mouse and rat origin and osteocalcin-2 and osteocalcin-related protein of mouse origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ 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).

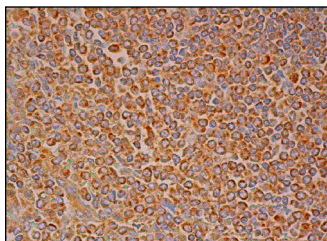
Suitable for use as control antibody for osteocalcin siRNA (m): sc-40791, osteocalcin shRNA Plasmid (m): sc-40791-SH and osteocalcin shRNA (m) Lentiviral Particles: sc-40791-V.

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.

DATA



osteocalcin (FL-95): sc-30045. Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing cytoplasmic staining of cells in white pulp and cells in red pulp.

SELECT PRODUCT CITATIONS

1. Hamrick, M.W., et al. 2008. Caloric restriction decreases cortical bone mass but spares trabecular bone in the mouse skeleton: implications for the regulation of bone mass by body weight. *J. Bone Miner. Res.* 23: 870-878.
2. Lovmand, J., et al. 2009. The use of combinatorial topographical libraries for the screening of enhanced osteogenic expression and mineralization. *Biomaterials* 30: 2015-2022.
3. Visigalli, D., et al. 2010. Hind limb unloading of mice modulates gene expression at the protein and mRNA level in mesenchymal bone cells. *BMC Musculoskelet. Disord.* 11: 147.
4. Bozec, A., et al. 2010. Fra-2/AP-1 controls bone formation by regulating osteoblast differentiation and collagen production. *J. Cell Biol.* 190: 1093-1106.
5. Lo, K.W., et al. 2012. The small molecule PKA-specific cyclic AMP analogue as an inducer of osteoblast-like cells differentiation and mineralization. *J. Tissue Eng. Regen. Med.* 6: 40-48.
6. Li, S., et al. 2013. A pivotal role of bone remodeling in granulocyte colony stimulating factor induced hematopoietic stem/progenitor cells mobilization. *J. Cell. Physiol.* 228: 1002-1009.
7. Zhang, D., et al. 2013. Intervertebral disc degeneration and ectopic bone formation in apolipoprotein E knockout mice. *J. Orthop. Res.* 31: 210-217.

RESEARCH USE

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



Try **osteocalcin (G-5): sc-365797** or **osteocalcin (E-6): sc-376835**, our highly recommended monoclonal alternatives to osteocalcin (FL-95). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **osteocalcin (G-5): sc-365797**.