SANTA CRUZ BIOTECHNOLOGY, INC.

osteocalcin (M-15): sc-18322

SANTA CRUZ BIOTECHNOLOGY
The Power to Question

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.

CHROMOSOMAL LOCATION

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

SOURCE

osteocalcin (M-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of osteocalcin of mouse origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-18322 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

osteocalcin (M-15) is recommended for detection of osteocalcin, 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 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (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.

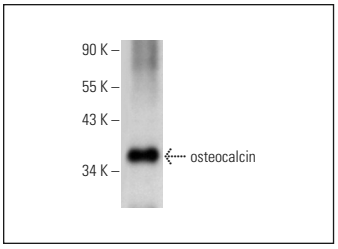
PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

RESEARCH USE

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

DATA



osteocalcin (M-15): sc-18322. Western blot analysis of mouse recombinant osteocalcin.

SELECT PRODUCT CITATIONS

1. Stanton, L., et al. 2007. Inhibition of p38 MAPK signaling in chondrocyte cultures results in enhanced osteogenic differentiation of perichondral cells. Exp. Cell Res. 313: 146-155.
2. Wutticharoenmongkol, P., et al. 2007. Osteoblastic phenotype expression of MC3T3-E1 cultured on electrospun polycaprolactone fiber mats filled with hydroxyapatite nanoparticles. Biomacromolecules 8: 2602-2610.
3. Hu, Z., et al. 2007. NDST1 modulates BMPR and PTHrP signaling during endochondral bone formation in a gene knockout model. Bone 40: 1462-1474.
4. Gindraux, F., et al. 2007. Human and rodent bone marrow mesenchymal stem cells that express primitive stem cell markers can be directly enriched by using the CD49a molecule. Cell Tissue Res. 327: 471-483.
5. Matsumoto, Y., et al. 2010. Estrogen and glucocorticoid regulate osteoblast differentiation through the interaction of bone morphogenetic protein-2 and tumor necrosis factor-α in C2C12 cells. Mol. Cell. Endocrinol. 325: 118-127.
6. Bilousova, G., et al. 2011. Osteoblasts derived from induced pluripotent stem cells form calcified structures in scaffolds both *in vitro* and *in vivo*. Stem Cells 29: 206-216.
7. James, A.W., et al. 2014. Lentiviral delivery of PPARγ shRNA alters the balance of osteogenesis and adipogenesis, improving bone microarchitecture. Tissue Eng. Part A 20: 2699-2710.
8. Hase, N., et al. 2015. Products of dentin matrix protein-1 degradation by interleukin-1β-induced matrix metalloproteinase-3 promote proliferation of odontoblastic cells. Biosci. Trends 9: 228-236.