

osteocalcin (G-20): sc-23790

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.
4. Park, Y.K., et al. 1995. Osteocalcin expression in primary bone tumors—*in situ* hybridization and immunohistochemical study. *J. Korean Med. Sci.* 10: 263-268.
5. Colford, J., et al. 1997. Five osteocalcin assays compared: tracer specificity, fragment interference, and calibration. *Clin. Chem.* 43: 1240-1241.

CHROMOSOMAL LOCATION

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

SOURCE

osteocalcin (G-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of 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.

Blocking peptide available for competition studies, sc-23790 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

osteocalcin (G-20) 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 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

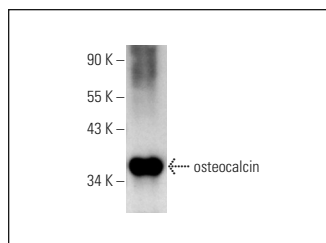
Suitable for use as control antibody for osteocalcin siRNA (m): sc-40791, osteocalcin shRNA Plasmid (m): sc-40791-SH and osteocalcin shRNA (m) Lentiviral Particles: sc-40791-V.

Molecular Weight of osteocalcin: 6 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



osteocalcin (G-20): sc-23790. Western blot analysis of mouse recombinant osteocalcin.

SELECT PRODUCT CITATIONS

1. Medici, D., et al. 2010. Conversion of vascular endothelial cells into multipotent stem-like cells. *Nat. Med.* 16: 1400-1406.

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 (G-20). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **osteocalcin (G-5): sc-365797**.