

# osteocalcin (V-19): sc-18319

## 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 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. 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: BGLAP (human) mapping to 1q22.

## SOURCE

osteocalcin (V-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of osteocalcin of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

osteocalcin (V-19) 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

osteocalcin (V-19) is also recommended for detection of osteocalcin in additional species, including equine, canine, bovine and porcine.

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.

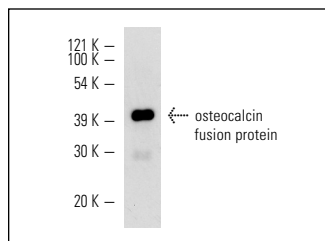
## RESEARCH USE

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

## STORAGE

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

## DATA



osteocalcin (V-19): sc-18319. Western blot analysis of human recombinant osteocalcin fusion protein.

## SELECT PRODUCT CITATIONS

1. Eghbali-Fatourehchi, G.Z., et al. 2005. Circulating osteoblast-lineage cells in humans. *N. Engl. J. Med.* 352: 1959-1966.
2. Turhani, D., et al. 2005. Analysis of cell-seeded 3-dimensional bone constructs manufactured *in vitro* with hydroxyapatite granules obtained from red algae. *J. Oral Maxillofac. Surg.* 63: 673-681.
3. Hammerick, K.E., et al. 2010. Pulsed direct current electric fields enhance osteogenesis in adipose-derived stromal cells. *Tissue Eng. Part A* 16: 917-931.
4. Foresta, C., et al. 2010. Evidence for osteocalcin production by adipose tissue and its role in human metabolism. *J. Clin. Endocrinol. Metab.* 95: 3502-3506.
5. Ewald, A., et al. 2010. Effect of cold-setting calcium- and magnesium phosphate matrices on protein expression in osteoblastic cells. *J. Biomed. Mater. Res. B Appl. Biomater.* 96: 326-332.
6. Vigier, S., et al. 2010. Collagen supramolecular and suprafibrillar organizations on osteoblasts long-term behavior: benefits for bone healing materials. *J. Biomed. Mater. Res. A* 94: 556-567.
7. Foresta, C., et al. 2010. Increased levels of osteocalcin-positive endothelial progenitor cells in patients affected by erectile dysfunction and cavernous atherosclerosis. *J. Sex. Med.* 7: 751-757.
8. Yang, X., et al. 2012. The dynamic changes of circulating OCN<sup>+</sup> cells versus Insulinlike growth factor-I during primary healing of orthognathic surgeries. *Oral Surg. Oral Med. Oral Pathol. Oral Radiol.* 113: 734-740.

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