



osteocalcin (3G8): sc-66158

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 three 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 postmenopausal 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.
3. 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.
4. Benayahu, D., et al. 1997. Osteocalcin (BGP), gene expression and protein production by marrow stromal adipocytes. *Biochem. Biophys. Res. Commun.* 231: 442-446.
5. Colford, J., et al. 1997. Five osteocalcin assays compared: tracer specificity, fragment interference and calibration. *Clin. Chem.* 43: 1240-1241.
6. Stein, G.S., et al. 1997. The osteocalcin gene: a model for multiple parameters of skeletal-specific transcriptional control. *Mol. Biol. Rep.* 24: 185-196.
7. Heikkinen, A.M., et al. 1997. Biochemical bone markers and bone mineral density during postmenopausal hormone replacement therapy with and without Vitamin D3: a prospective, controlled, randomized study. *J. Clin. Endocrinol. Metab.* 82: 2476-2482.
8. Raymond, M.H., et al. 1999. Osteocalcin: genetic and physical mapping of the human gene BGLAP and its potential role in postmenopausal osteoporosis. *Genomics* 60: 210-217.
9. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 112260. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

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

SOURCE

osteocalcin (3G8) is a mouse monoclonal antibody raised against a combination of osteocalcin of bovine and human origin.

PRODUCT

Each vial contains 100 μ g IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

osteocalcin (3G8) is recommended for detection of osteocalcin of human and bovine origin by 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.

PROTOCOLS

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



See **osteocalcin (G-5): sc-365797** for osteocalcin antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.