SANTA CRUZ BIOTECHNOLOGY, INC.

osteocalcin (G-5): sc-365797

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 3 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 postmenopause bone mineral density (BMD) levels and may predispose some women to osteoporosis.

CHROMOSOMAL LOCATION

Genetic locus: BGLAP (human) mapping to 1q22; Bglap/Bglap2/Bglap3 (mouse) mapping to 3 F1.

SOURCE

osteocalcin (G-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 53-87 within an internal region of osteocalcin of human origin.

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

osteocalcin (G-5) is available conjugated to agarose (sc-365797 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365797 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; and to either phycoerythrin (sc-365797 PE), fluorescein (sc-365797 FITC) or Alexa Fluor® 488 (sc-365797 AF488) or Alexa Fluor® 647 (sc-365797 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

Blocking peptide available for competition studies, sc-365797 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

osteocalcin (G-5) is recommended for detection of osteocalcin of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), 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).

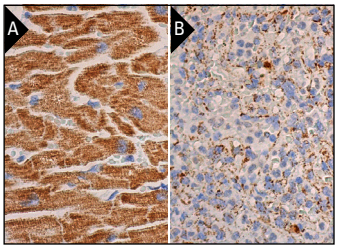
Suitable for use as control antibody for osteocalcin siRNA (h): sc-40790, osteocalcin siRNA (m): sc-40791, osteocalcin shRNA Plasmid (h): sc-40790-SH, osteocalcin shRNA Plasmid (m): sc-40791-SH, osteocalcin shRNA (h) Lentiviral Particles: sc-40790-V and osteocalcin shRNA (m) Lentiviral Particles: sc-40791-V.

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 (G-5): sc-365797. Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic staining of myocytes (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing cytoplasmic staining of cells in white pulp and cells in red pulp (**B**).

SELECT PRODUCT CITATIONS

1. Ni, M., et al. 2013. Engineered scaffold-free tendon tissue produced by tendon-derived stem cells. Biomaterials 34: 2024-2037.
2. Sun, J., et al. 2015. Role of bone morphogenetic protein-2 in osteogenic differentiation of mesenchymal stem cells. Mol. Med. Rep. 12: 4230-4237.
3. Niu, L.N., et al. 2016. Mineralogenic characteristics of osteogenic lineage-committed human dental pulp stem cells following their exposure to a discoloration-free calcium aluminosilicate cement. Dent. Mater. 32: 1235-1247.
4. Koga, T., et al. 2016. Bone regeneration using dentin matrix depends on the degree of demineralization and particle size. PLoS ONE 11: e0147235.
5. Wang, J., et al. 2017. Isopsoralen-mediated suppression of bone marrow adiposity and attenuation of the adipogenic commitment of bone marrow-derived mesenchymal stem cells. Int. J. Mol. Med. 39: 527-538.
6. Xu, L., et al. 2017. Glycosylation status of bone sialoprotein and its role in mineralization. Exp. Cell Res. 360: 413-420.
7. Yogui, F.C., et al. 2018. A SERM increasing the expression of the osteoblastogenesis and mineralization-related proteins and improving quality of bone tissue in an experimental model of osteoporosis. J. Appl. Oral Sci. 26: e20170329.
8. Jover, E., et al. 2018. Inhibition of enzymes involved in collagen cross-linking reduces vascular smooth muscle cell calcification. FASEB J. 32: 4459-4469.

RESEARCH USE

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