SANTA CRUZ BIOTECHNOLOGY, INC.

osteocalcin (D-11): sc-390877

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 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 (D-11) is a mouse monoclonal antibody raised against amino acids 1-95 representing full length osteocalcin of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

osteocalcin (D-11) is available conjugated to agarose (sc-390877 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-390877 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390877 PE), fluorescein (sc-390877 FITC), Alexa Fluor® 488 (sc-390877 AF488), Alexa Fluor® 546 (sc-390877 AF546), Alexa Fluor® 594 (sc-390877 AF594) or Alexa Fluor® 647 (sc-390877 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390877 AF680) or Alexa Fluor® 790 (sc-390877 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

osteocalcin (D-11) is recommended for detection of osteocalcin of mouse, rat and human origin and osteocalcin-2 and osteocalcin-related protein of mouse 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

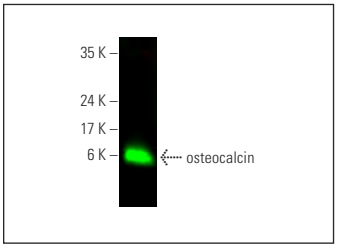
Suitable for use as control antibody for osteocalcin siRNA (h): sc-40790, osteocalcin siRNA (m): sc-40791, osteocalcin shRNA Plasmid (h): sc-40790-SH, osteocalcin shRNA Plasmid (m): sc-40791-SH, osteocalcin shRNA (h) Lentiviral Particles: sc-40790-V and osteocalcin shRNA (m) Lentiviral Particles: sc-40791-V.

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 (D-11) Alexa Fluor® 680: sc-390877 AF680. Direct near-infrared western blot analysis of osteocalcin expression in human PBL whole cell lysate. Blocked with UltraCruz® Blocking Reagent: sc-516214.

SELECT PRODUCT CITATIONS

1. Kang, Y.H., et al. 2015. Immunomodulatory properties and *in vivo* osteogenesis of human dental stem cells from fresh and cryopreserved dental follicles. Differentiation 90: 48-58.
2. Ozeki, N., et al. 2016. Bone morphogenetic protein-induced cell differentiation involves Atg7 and Wnt16 sequentially in human stem cell-derived osteoblastic cells. Exp. Cell Res. 347: 24-41.
3. Guo, C., et al. 2017. Protective effects of pretreatment with quercetin against lipopolysaccharide-induced apoptosis and the inhibition of osteoblast differentiation via the MAPK and Wnt/β-catenin pathways in MC3T3-E1 cells. Cell. Physiol. Biochem. 43: 1547-1561.
4. Zhou, K., et al. 2018. Promoting proliferation and differentiation of BMSCs by green tea polyphenols functionalized porous calcium phosphate. Regen. Biomater. 5: 35-41.
5. Liu, H., et al. 2019. miR-34a promotes bone regeneration in irradiated bone defects by enhancing osteoblastic differentiation of mesenchymal stromal cells in rats. Stem Cell Res. Ther. 10: 180.
6. Ding, Y., et al. 2019. Sweroside-mediated mTORC1 hyperactivation in bone marrow mesenchymal stem cells promotes osteogenic differentiation. J. Cell. Biochem. 120: 16025-16036.
7. Orimoto, A., et al. 2020. Efficient immortalization of human dental pulp stem cells with expression of cell cycle regulators with the intact chromosomal condition. PLoS ONE 15: e0229996.
8. Zhang, L., et al. 2020. Impaired autophagy triggered by HDAC9 in mesenchymal stem cells accelerates bone mass loss. Stem Cell Res. Ther. 11: 269.

RESEARCH USE

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