SANTA CRUZ BIOTECHNOLOGY, INC.

osteocalcin (E-6): sc-376835

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 23Kb 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 post-menopause bone mineral density (BMD) levels and may predispose some women to osteoporosis.

CHROMOSOMAL LOCATION

Genetic locus: Bglap/Bglap2/Bglap3 (mouse) mapping to 3 F1.

SOURCE

osteocalcin (E-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 41-79 within an internal region of osteocalcin of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

osteocalcin (E-6) is available conjugated to agarose (sc-376835 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376835 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376835 PE), fluorescein (sc-376835 FITC), Alexa Fluor® 488 (sc-376835 AF488), Alexa Fluor® 546 (sc-376835 AF546), Alexa Fluor® 594 (sc-376835 AF594) or Alexa Fluor® 647 (sc-376835 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376835 AF680) or Alexa Fluor® 790 (sc-376835 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376835 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

osteocalcin (E-6) is recommended for detection of osteocalcin, 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).

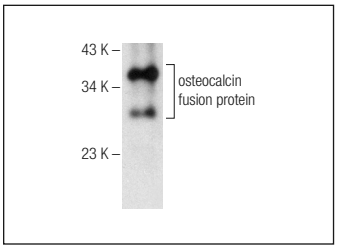
Suitable for use as control antibody for osteocalcin siRNA (m): sc-40791, osteocalcin shRNA Plasmid (m): sc-40791-SH and osteocalcin shRNA (m) Lentiviral Particles: sc-40791-V.

Molecular Weight of osteocalcin: 6 kDa.

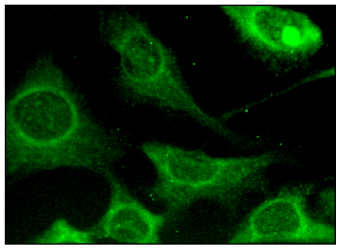
STORAGE

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

DATA



osteocalcin (E-6): sc-376835. Western blot analysis of mouse recombinant osteocalcin fusion protein.



osteocalcin (E-6): sc-376835. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

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3. Huang, C., et al. 2016. MiR-144-3p regulates osteogenic differentiation and proliferation of murine mesenchymal stem cells by specifically targeting Smad4. FEBS Lett. 590: 795-807.
4. Han, J. and Wang, W. 2017. Effects of tanshinol on markers of bone turnover in ovariectomized rats and osteoblast cultures. PLoS ONE 12: e0181175.
5. Yan, L., et al. 2017. Insulin-like growth factor-1 promotes the proliferation and odontoblastic differentiation of human dental pulp cells under high glucose conditions. Int. J. Mol. Med. 40: 1253-1260.
6. Heo, S.Y., et al. 2018. Fish bone peptide promotes osteogenic differentiation of MC3T3-E1 pre-osteoblasts through upregulation of MAPKs and Smad pathways activated BMP-2 receptor. Cell Biochem. Funct. 36: 137-146.
7. Xiao, C., et al. 2019. Preptin promotes proliferation and osteogenesis of MC3T3-E1 cells by upregulating β-catenin expression. IUBMB Life 71: 854-862.
8. Song, M., et al. 2020. Ginsenoside Rg3 attenuates aluminum-induced osteoporosis through regulation of oxidative stress and bone metabolism in rats. Biol. Trace Elem. Res. 198: 557-566.
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10. Na, W., et al. 2021. Aesculetin accelerates osteoblast differentiation and matrix-vesicle-mediated mineralization. Int. J. Mol. Sci. 22: 12391.

RESEARCH USE

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