

osteocalcin (E-6): sc-376835

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/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 μ g IgG₁ 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 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376835 HRP), 200 μ g/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 μ g/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 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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

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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 μ g per 100-500 μ 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).

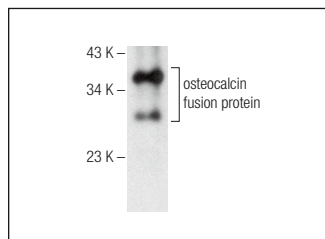
Suitable for use as control antibody for osteocalcin siRNA (m): sc-40791, osteocalcin shRNA Plasmid (m): sc-40791-SH and osteocalcin shRNA (m) Lentiviral Particles: sc-40791-V.

Molecular Weight of osteocalcin: 6 kDa.

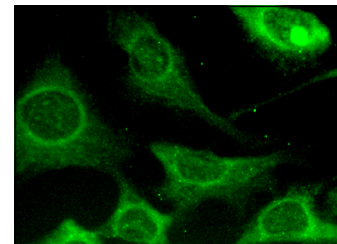
STORAGE

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

1. Tandon, A., et al. 2013. BMP7 gene transfer via gold nanoparticles into stroma inhibits corneal fibrosis *in vivo*. PLoS ONE 8: e66434.
2. Jia, J., et al. 2015. Dsp mutations disrupt mineralization homeostasis during odontoblast differentiation. Am. J. Transl. Res. 7: 2379-2396.
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.
9. Shao, F., et al. 2021. Targeting chondrocytes for arresting bony fusion in ankylosing spondylitis. Nat. Commun. 12: 6540.
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.