

# osteocalcin (C-7): sc-376726

## BACKGROUND

Bone  $\gamma$ -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  $\gamma$ -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 (C-7) 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  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

osteocalcin (C-7) is available conjugated to agarose (sc-376726 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376726 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376726 PE), fluorescein (sc-376726 FITC), Alexa Fluor® 488 (sc-376726 AF488), Alexa Fluor® 546 (sc-376726 AF546), Alexa Fluor® 594 (sc-376726 AF594) or Alexa Fluor® 647 (sc-376726 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376726 AF680) or Alexa Fluor® 790 (sc-376726 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376726 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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## APPLICATIONS

osteocalcin (C-7) 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  $\mu$ g per 100-500  $\mu$ 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).

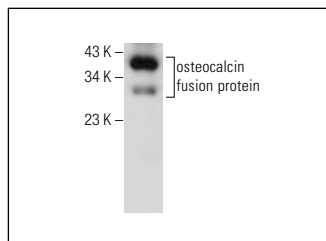
Suitable for use as control antibody for osteocalcin siRNA (m): sc-40791, osteocalcin shRNA Plasmid (m): sc-40791-SH and osteocalcin shRNA (m) Lentiviral Particles: sc-40791-V.

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 (C-7): sc-376726. Western blot analysis of mouse recombinant osteocalcin fusion protein.

## SELECT PRODUCT CITATIONS

- Qi, L. and Zhang, Y. 2014. The microRNA 132 regulates fluid shear stress-induced differentiation in periodontal ligament cells through mTOR signaling pathway. *Cell. Physiol. Biochem.* 33: 433-445.
- Liu, X., et al. 2016. Effects of nano tantalum implants on inducing osteoblast proliferation and differentiation. *Exp. Ther. Med.* 12: 3541-3544.
- Vijayan, V., et al. 2017. Bone morphogenetic protein-5, a key molecule that mediates differentiation in MC3T3E1 osteoblast cell line. *Biofactors* 43: 558-566.
- Ahmed, M.F., et al. 2019. Direct conversion of mouse embryonic fibroblast to osteoblast cells using hLMP-3 with Yamanaka factors. *Int. J. Biochem. Cell Biol.* 106: 84-95.
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- Auwah Boadi, E., et al. 2021. Modulation of tubular pH by acetazolamide in a Ca<sup>2+</sup> transport deficient mice facilitates calcium nephrolithiasis. *Int. J. Mol. Sci.* 22: 3050.
- Cui, Y., et al. 2021. ROS-mediated mitophagy and apoptosis are involved in aluminum-induced femoral impairment in mice. *Chem. Biol. Interact.* 349: 109663.
- Gong, Y., et al. 2021. Paracrine effects of recombinant human adiponectin promote bone regeneration. *Front. Cell Dev. Biol.* 9: 762335.
- Xie, Z., et al. 2022. Mechanical force promotes dimethylarginine dimethylaminohydrolyase 1-mediated hydrolysis of the metabolite asymmetric dimethylarginine to enhance bone formation. *Nat. Commun.* 13: 50.

## RESEARCH USE

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