

osteocalcin (C-8): sc-74495

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

CHROMOSOMAL LOCATION

Genetic locus: BGLAP (human) mapping to 1q22.

SOURCE

osteocalcin (C-8) is a mouse monoclonal antibody raised against amino acids 1-100 representing full length osteocalcin of human origin.

PRODUCT

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

osteocalcin (C-8) is available conjugated to agarose (sc-74495 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-74495 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-74495 PE), fluorescein (sc-74495 FITC), Alexa Fluor® 488 (sc-74495 AF488), Alexa Fluor® 546 (sc-74495 AF546), Alexa Fluor® 594 (sc-74495 AF594) or Alexa Fluor® 647 (sc-74495 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-74495 AF680) or Alexa Fluor® 790 (sc-74495 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

osteocalcin (C-8) is recommended for detection of osteocalcin of human 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). osteocalcin (C-8) is also recommended for detection of osteocalcin in additional species, including bovine.

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

Molecular Weight of osteocalcin: 6 kDa.

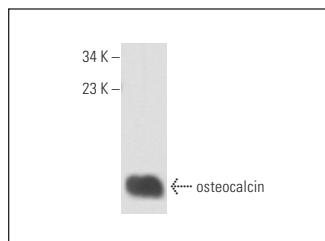
RESEARCH USE

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

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-8): sc-74495. Western blot analysis of purified bovine osteocalcin.

SELECT PRODUCT CITATIONS

1. Rauner, M., et al. 2009. Inhibition of lamin A/C attenuates osteoblast differentiation and enhances RANKL-dependent osteoclastogenesis. *J. Bone Miner. Res.* 24: 78-86.
2. Medici, D., et al. 2010. Conversion of vascular endothelial cells into multipotent stem-like cells. *Nat. Med.* 16: 1400-1406.
3. Miron, R.J., et al. 2011. Premature osteoblast clustering by enamel matrix proteins induces osteoblast differentiation through up-regulation of connexin 43 and N-cadherin. *PLoS ONE* 6: e23375.
4. Lu, T.S., et al. 2012. Induction of intracellular heat-shock protein 72 prevents the development of vascular smooth muscle cell calcification. *Cardiovasc. Res.* 96: 524-532.
5. Foresta, C., et al. 2013. Platelets express and release osteocalcin and co-localize in human calcified atherosclerotic plaques. *J. Thromb. Haemost.* 11: 357-365.
6. Zhang, N., et al. 2014. Hyperoside, a flavonoid compound, inhibits proliferation and stimulates osteogenic differentiation of human osteosarcoma cells. *PLoS ONE* 9: e98973.
7. Kang, H., et al. 2015. Biomineralized matrices dominate soluble cues to direct osteogenic differentiation of human mesenchymal stem cells through adenosine signaling. *Biomacromolecules* 16: 1050-1061.
8. Hu, X.K., et al. 2016. Liraglutide attenuates the osteoblastic differentiation of MC3T3 E1 cells by modulating AMPK/mTOR signaling. *Mol. Med. Rep.* 14: 3662-3668.
9. Ozeki, N., et al. 2017. MicroRNA-211 and autophagy-related gene 14 signaling regulate osteoblast-like cell differentiation of human induced pluripotent stem cells. *Exp. Cell Res.* 352: 63-74.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.