

# Osteocalcin Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP2002a

## Product Information

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<b>Application</b>	WB, IHC-P, E
<b>Primary Accession</b>	<a href="#">P02818</a>
<b>Other Accession</b>	<a href="#">NP_954642</a>
<b>Reactivity</b>	Human
<b>Host</b>	Rabbit
<b>Clonality</b>	Polyclonal
<b>Isotype</b>	Rabbit IgG
<b>Calculated MW</b>	10963
<b>Antigen Region</b>	2-32

## Additional Information

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<b>Gene ID</b>	632
<b>Other Names</b>	Osteocalcin, Bone Gla protein, BGP, Gamma-carboxyglutamic acid-containing protein, BGLAP
<b>Target/Specificity</b>	This Osteocalcin antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 2-32 amino acids from the N-terminal region of human Osteocalcin.
<b>Dilution</b>	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
<b>Format</b>	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
<b>Storage</b>	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
<b>Precautions</b>	Osteocalcin Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

## Protein Information

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<b>Name</b>	BGLAP
<b>Function</b>	The carboxylated form is one of the main organic components of the bone matrix, which constitutes 1-2% of the total bone protein (PubMed: <a href="#">3019668</a> , PubMed: <a href="#">6967872</a> ). Acts as a negative regulator of bone formation and is required to limit bone formation without impairing bone resorption or

mineralization (By similarity). Binds strongly to apatite and calcium upon gamma-carboxylation; this modification is essential for bone metabolism (PubMed:[6967872](#), PubMed:[39880952](#)).

## Cellular Location

Secreted.

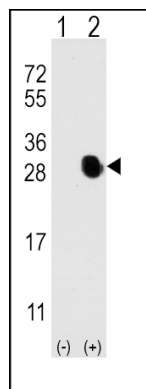
## Background

Prior to the formation of calcified bone, noncollagenous proteins form in the extracellular bone matrix. Gamma-carboxyglutamic acid residues are formed by vitamin K, vitamin-D regulated calcium binding proteins containing residues of Gla. These residues are essential for the binding of calcium and constitute 1-2% of total bone protein. Osteocalcin itself binds strongly to apatite and calcium. Production of osteocalcin is expressed late in normal bone development and is characteristic of mature osteoblasts. Regular osteocalcin production has been shown to be linked to the p53 tumor suppressor gene. The p53 gene undergoes rearrangement in a high percentage of osteosarcomas, resulting in loss of its expression. The loss of p53 regulation inhibits further osteocalcin production. The absence of end-point differentiation in bone due to p53 rearrangements and lack of osteocalcin production may contribute to the maintenance of the tumorigenic phenotype in osteosarcomas.

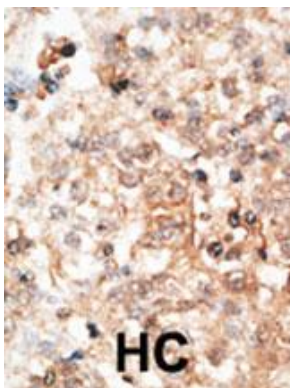
## References

Yamada, Y., et al., J. Clin. Endocrinol. Metab. 88(7):3372-3378 (2003). Gronthos, S., et al., J. Bone Miner. Res. 18(4):716-722 (2003). Yousfi, M., et al., Biochem. Biophys. Res. Commun. 297(3):641-644 (2002). Willis, D.M., et al., J. Biol. Chem. 277(40):37280-37291 (2002). Viereck, V., et al., J. Cell. Biochem. 86(2):348-356 (2002).

## Images



Western blot analysis of Osteocalcin (arrow) using rabbit polyclonal Osteocalcin Antibody (N-term) (Cat.#AP2002a). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the BGLAP gene (Lane 2) (Origene Technologies).



Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.