

## Datasheet: HCA029

<b>Description:</b>	HUMAN ANTI BOVINE OSTEOCALCIN
<b>Specificity:</b>	OSTEOCALCIN
<b>Other names:</b>	BONE GLA PROTEIN
<b>Format:</b>	Purified
<b>Product Type:</b>	Monoclonal Antibody
<b>Clone:</b>	AbD02591
<b>Isotype:</b>	HuCAL Fab bivalent
<b>Quantity:</b>	50 µg

## Product Details

### Applications

This product has been reported to work in the following applications. This information is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information. For general protocol recommendations, please visit [www.bio-rad-antibodies.com/protocols](http://www.bio-rad-antibodies.com/protocols).

	Yes	No	Not Determined	Suggested Dilution
ELISA	▪			2 ug/ml
Western Blotting	▪			5 ug/ml

Where this product has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. Suggested working dilutions are given as a guide only. It is recommended that the user titrates the product for use in their own system using appropriate negative/positive controls.

### Target Species

Bovine

### Species Cross Reactivity

Reacts with: Human

**N.B.** Antibody reactivity and working conditions may vary between species. Cross reactivity is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information.

### Product Form

A bivalent human recombinant Fab selected from the HuCAL® GOLD phage display library. Expressed in *E. coli* and purified using NiNTA affinity chromatography. This Fab fragment is dimerized via a helix-turn-helix motif. The antibody is tagged with a myc-tag (EQKLISEEDL) and a his-tag (HHHHHH) at the C-terminus of the anti-body heavy chain - Lyophilized.

### Reconstitution

Reconstitute with 50 ul distilled water

Care should be taken during reconstitution as the protein may appear as a film at the

bottom of the vial. Bio-Rad recommend that the vial is gently mixed after reconstitution.

<b>Preparation</b>	Purified antibody prepared by metal chelate affinity chromatography
<b>Buffer Solution</b>	Phosphate buffered saline
<b>Preservative Stabilisers</b>	None present
<b>Approx. Protein Concentrations</b>	Antibody concentration 1.0 mg/ml following reconstitution
<b>Immunogen</b>	Native bovine osteocalcin with the sequence YLDHWLGAPAPYPDPLEPKREVCELNPDCDELADHIGFQEAYRRFYGPV
<b>External Database Links</b>	<b>UniProt:</b> <a href="#">P02820</a> <a href="#">Related reagents</a>
<b>RRID</b>	AB_2065068
<b>Specificity</b>	<p><b>Human anti Bovine osteocalcin antibody, clone AbD02591</b> recognizes bovine osteocalcin (Bone Gla Protein), a 49 amino acid single chain vitamin K dependent protein (molecular weight 5.8 kDa), made by osteoblasts and a major component of the non-collagenous bone matrix. Post-translational modification by a vitamin K dependent carboxylase produces three g-carboxyglutamic acid residues at positions 17, 21 and 24, giving it a high affinity for calcium. The mature protein contains a single intrachain disulfide bond joining Cys23 to Cys29. The secondary structure is highly calcium dependent and contains 14% <math>\alpha</math>-helix, 20% <math>\beta</math>-sheet and 67% random form in the presence of calcium, and 1% <math>\alpha</math>-helix, 20% <math>\beta</math>-sheet and 79% random form in the absence of calcium (<a href="#">Delmas <i>et al.</i> 1984</a>). Sixty to ninety percent of de novo synthesized osteocalcin is incorporated into the bone matrix where it binds to hydroxy-apatite during matrix mineralization. The remainder of the osteocalcin is released into the circulation where it can be measured as a sensitive marker of bone formation. Serum osteocalcin is elevated in diseases characterized by increased bone turnover such as osteoporosis, hyperparathyroidism and Paget's disease, and low in conditions associated with low bone turnover such as hypoparathyroidism and growth hormone deficiency (<a href="#">Lee <i>et al.</i> 1990</a>). Circulating osteocalcin is unstable as it contains a tryptic cleavage site at amino acids 43-45 near the C-terminus. After cleavage a large fragment containing amino acids 1 – 43 is formed, which contains both the N-terminus and the middle portion of the protein. Whereas the levels of intact osteocalcin rapidly decreases, 1-43 osteocalcin remains stable in serum even after repeated freeze thaw cycles or storage at elevated temperatures (<a href="#">Lee <i>et al.</i> 1990</a> for details).</p> <p>Human anti Bovine osteocalcin antibody, clone AbD02591 recognizes intact osteocalcin but not fragments corresponding to amino acids 7-19, 37-49 or 45-49.</p>
<b>References</b>	<ol style="list-style-type: none"><li>1. Delmas PD <i>et al.</i> (1984) Immunochemical studies of conformational alterations in bone gamma-carboxyglutamic acid containing protein. <a href="#">Biochemistry. 23: 4720-4725.</a></li><li>2. Lee, A.J. <i>et al.</i> (2000) Measurement of osteocalcin <a href="#">Ann Clin Biochem. 37: 432-446.</a></li></ol>

<b>Storage</b>	Prior to reconstitution store at +4°C. After reconstitution store at -20°C. Storage in frost-free freezers is not recommended. Avoid repeated freezing and thawing as this may denature the antibody. Should this product contain a precipitate we recommend microcentrifugation before use.
<b>Guarantee</b>	6 months from date of reconstitution
<b>Acknowledgements</b>	Sold under license of U.S. Patents 6753136, 7785859 and 8273688 and corresponding patents. This antibody was developed by Bio-Rad, Zeppelinstr. 4, 82178 Puchheim, Germany. His-tag is a registered trademark of EMD Biosciences.
<b>Health And Safety Information</b>	Material Safety Datasheet documentation #10162 available at: 10162: <a href="https://www.bio-rad-antibodies.com/uploads/MSDS/10162.pdf">https://www.bio-rad-antibodies.com/uploads/MSDS/10162.pdf</a>
<b>Licensed Use</b>	For in vitro research purposes only, unless otherwise specified in writing by Bio-Rad.
<b>Regulatory</b>	For research purposes only
<b>Technical Advice</b>	Recommended protocols and further information about HuCAL recombinant antibody technology can be found in the <a href="#">HuCAL Antibodies Technical Manual</a>

## Related Products

### Recommended Secondary Antibodies

Mouse Anti Synthetic Peptide HISTIDINE TAG (MCA5995...) [HRP](#)

Goat Anti Human IgG F(ab')<sub>2</sub> (0500-0099...) [HRP](#)

Mouse Anti Human C-MYC (MCA2200...) [HRP](#)

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