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Biologic Solutions

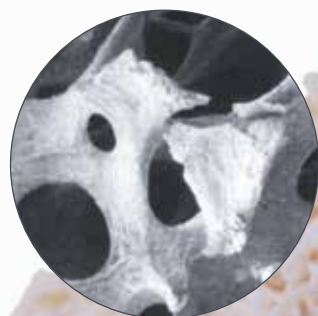
# Pro Osteon<sup>®</sup> Bone Graft Substitute

Track record<sup>1,2</sup> for success

# Pro Osteon Bone Graft Substitute

The Zimmer Biomet Spine Biologics product portfolio represents the passionate pursuit of the most innovative and clinically relevant solutions that address the needs of surgeons and their patients. Pro Osteon is a versatile bone graft substitute with a variety of options to meet the clinical needs of even the most challenging patient. Available in a wide range of sizes, forms and porosities, Pro Osteon is an ideal graft of choice as a synthetic substitute.





Offers interconnected porosity for vascular pathways and cell migration

Provides the framework or scaffolding within a bony environment for cells to infiltrate and attach

**Products in the Spine Biologics portfolio contain elements that contribute to the bone remodeling triad, whether they are osteoconductive, osteoinductive, osteogenic or contain a combination of these three elements.**

Osteoconductive materials provide the framework or scaffolding within a bony environment for cells to infiltrate and attach. They also offer porosity for vascular pathways and cell migration. Autograft has long been considered the gold standard in spinal procedures requiring graft material; however, it has known limitations, such as donor site morbidity and limited availability.<sup>3</sup> Synthetic bone graft substitutes have been developed to overcome these limitations, and although they cannot provide all the elements essential for new bone formation, products like Pro Ostein provide ideal options for osteoconductive scaffolds and have a long history of clinical use that supports its benefits.

## Pro Osteon: An Adaptable Graft with Many Options

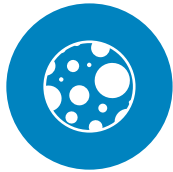
With clinical data going back to 1982<sup>4</sup>, Pro Osteon has an unmatched track record among bone graft substitutes.<sup>1,2</sup>



### Formulations

Pro Osteon is available in two forms:

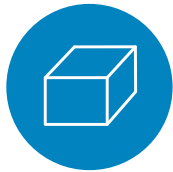
- Pure, nonresorbable, hydroxyapatite
- Resorbable, osteoconductive matrix consisting of a thin, 2µm–10µm layer of hydroxyapatite over a calcium carbonate core



### Porosity

Pro Osteon is also available in different porosities, each with their own unique applications:

- Pro Osteon 200R
- Pro Osteon 500 and 500R



### Form

- In addition, Pro Osteon is available in the form of granules and preformed shapes to accommodate a wide range of anatomic structures. Blocks, wedges and granules are provided to facilitate placement into small and large bone defects. Small and large granule sizes facilitate filling small and large bone defects.

	FORMULATION	AVERAGE PORE SIZE (µm)	RESORPTION RATE	FORMS	POROSITY (%) <sup>1</sup>
PRO OSTEON 500	Hydroxyapatite	500	Period of years	Blocks and granules	60–70
PRO OSTEON 500R	Hydroxyapatite/calcium carbonate	500	6–18 months	Blocks, wedges and granules	60–70
PRO OSTEON 200R	Hydroxyapatite/calcium carbonate	200	6–18 months	Granules	45–55



**Pro Osteon 200R granules are provided sterile in vials or syringes for convenient delivery**

### Pro Osteon 200R

- The 200R variant is significantly resorbed in approximately 6–18 months
- Full 200µm (average) interconnected porosity provides continuous pathways for bony ingrowth
- Small granules (0.5 mm–1 mm) are convenient for filling small defects
- Architecture and chemical composition is similar to human cancellous bone
- Requires no special handling or reconstitution and is shipped sterile and ready to use



**Pro Osteon 500 and 500R**

### Pro Osteon 500 and 500R

- The 500R variant is significantly resorbed in approximately 6–18 months
- Full 500µm (average) interconnected porosity provides continuous pathways for bony ingrowth
- Available as small (1 mm–4 mm) or large (5 mm–9 mm) granules, convenient for small and large defects
- Architecture and chemical composition are similar to human cancellous bone
- Pro Osteon 500R can be mixed with autologous blood or bone marrow aspirate
- Blocks are available in different sizes
- Requires no special handling or reconstitution and is shipped sterile ready to use
- Excellent as a bone void filler to be packed into bony voids or gaps in the skeletal system
- Pro Osteon 500 was shown in a clinical study to be equivalent to autogenous bone graft in clinical healing patterns of metaphyseal fracture defects<sup>4</sup>

## Pro Osteon Ordering Information



### Pro Osteon 200R Small Granules

DESCRIPTION	PART NUMBER
Pro Osteon 200R Small Granules, 2 cc	2RG02
Pro Osteon 200R Small Granules, 5 cc	2RG05
Pro Osteon 200R Small Granules, 15 cc	2RG15

### Pro Osteon Granule Packs

DESCRIPTION	PART NUMBER
Pro Osteon 200R Small Granules, 0.5 cc (6 pack)	2RG005
Pro Osteon 200R Prefilled Granules, 0.8 cc (5 pack)*	2RGS05
Pro Osteon 200R Prefilled Granules, 0.8 cc (10 pack)*	2RGS10

\*Product packaged in a syringe.



### Pro Osteon 500 and 500R Small and Large Granules

DESCRIPTION	PART NUMBER
Pro Osteon 500 Small Granules, 5 cc	5G05
Pro Osteon 500 Small Granules, 10 cc	5G10
Pro Osteon 500 Small Granules, 15 cc	5G15
Pro Osteon 500 Small Granules, 30 cc	5G30
Pro Osteon 500R Small Granules, 5 cc	5RG05
Pro Osteon 500R Small Granules, 10 cc	5RG10
Pro Osteon 500R Small Granules, 15 cc	5RG15
Pro Osteon 500R Small Granules, 20 cc	5RG20
Pro Osteon 500R Small Granules, 30 cc	5RG30
Pro Osteon 500R Large Granules, 15 cc	5RG15L
Pro Osteon 500R Large Granules, 30 cc	5RG30L



### Pro Osteen Blocks

DESCRIPTION	PART NUMBER
Pro Osteen 500 Block 40 mm × 10 mm × 10 mm, 4.0 cc	5B040
Pro Osteen 500 Block 25 mm × 25 mm × 12 mm, 7.5 cc	5B075
Pro Osteen 500 Block 50 mm × 20 mm × 10 mm, 10.0 cc	5B100
Pro Osteen 500R Block 10 mm × 10 mm × 10 mm, 1.0 cc	5RB010
Pro Osteen 500R Block 40 mm × 6 mm × 6 mm, 1.4 cc	5RB014
Pro Osteen 500R Block 40 mm × 12 mm × 5 mm, 2.4 cc	5RB024
Pro Osteen 500R Block 40 mm × 10 mm × 10 mm, 4.0 cc	5RB040
Pro Osteen 500R Block 25 mm × 25 mm × 12 mm, 7.5 cc	5RB075
Pro Osteen 500R Block 50 mm × 20 mm × 10 mm, 10.0 cc	5RB100
Pro Osteen 500R Block 30 mm × 30 mm × 12 mm, 10.8 cc	5RB108

### Pro Osteen Wedges

DESCRIPTION	PART NUMBER
Pro Osteen 500R Wedge 6 mm × 25 mm × 60 mm, 3°	5RBW065
Pro Osteen 500R Wedge 7 mm × 25 mm × 60 mm, 4°	5RBW072
Pro Osteen 500R Wedge 8 mm × 25 mm × 60 mm, 5°	5RBW079
Pro Osteen 500R Wedge 10 mm × 25 mm × 60 mm, 7°	5RBW094
Pro Osteen 500R Wedge 11 mm × 25 mm × 60 mm, 8°	5RBW101
Pro Osteen 500R Wedge 12 mm × 25 mm × 60 mm, 9°	5RBW108
Pro Osteen 500R Wedge 15 mm × 25 mm × 60 mm, 11°	5RBW130
Pro Osteen 500R Wedge 17 mm × 25 mm × 60 mm, 13°	5RBW144
Pro Osteen 500R Wedge 20 mm × 25 mm × 60 mm, 16°	5RBW166
Pro Osteen 500R Wedge 22 mm × 25 mm × 60 mm, 18°	5RBW180



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3. Younger EM, Chapman MW. Morbidity at bone graft donor sites. *J Ortho Trauma*. 1989;3(3):192–5.
4. Bucholz RW, Carlton A, Holmes R. Interporous hydroxyapatite as a bone graft substitute in tibial plateau fractures. *Clin Orthop Relat Res*. 1989;(240):53–62.

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Please see the package insert for a complete listing of the indications, contraindications, precautions, warnings, adverse effects, and patient counseling information. Rx Only. Results may vary. Not all patients are candidates for this product and/or procedure.

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