- 100% human demineralized cancellous bone
- Osteoinductive
- Osteoconductive
- Sterile
Mechanical and Biological Characteristics

- 100% human demineralized cancellous bone
- Osteoconductive, interconnected porosity
- Osteoinductive properties
- Elastic, compressible handling characteristics
- Radiolucent to allow for accurate follow-up
- Sterile
- 5 year shelf life, room-temperature storage

OsteoSponge® Benefits

OsteoSponge® is a novel form of demineralized bone matrix (DBM) made from 100% bone. Derived from trabecular bone, OsteoSponge® provides a natural scaffold for cellular ingrowth and exposes bone-growth-inducing proteins to the healing environment. The malleable properties of OsteoSponge® enable it to fill and conform to irregular bony defects. Due to its shape memory characteristics, OsteoSponge® will expand to completely fill a void after graft placement. The unique mechanical and biological properties make OsteoSponge® an ideal bone graft for use with anterior spinal devices, in arthrodesis, or in fracture sites.

Endogenous Native Growth Factors in OsteoSponge®

These results illustrate that OsteoSponge® provides a host of signaling molecules that are involved in the remodeling and creation of new bone. Therefore, OsteoSponge® supports the natural progression of events from bone induction to bone formation.

<table>
<thead>
<tr>
<th>Growth Factor</th>
<th>Concentration Detected (pg/g of bone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMP-2</td>
<td>8,423 ± 248</td>
</tr>
<tr>
<td>BMP-4</td>
<td>1,112 ± 19</td>
</tr>
<tr>
<td>BMP-7</td>
<td>50,581 ± 1,876</td>
</tr>
<tr>
<td>IGF-1</td>
<td>713 ± 173</td>
</tr>
</tbody>
</table>

Growth Factor Concentration Detected

BMP-2 8,423 ± 248
BMP-4 1,112 ± 19
BMP-7 50,581 ± 1,876
IGF-1 713 ± 173

OsteoSponge® Strips

109618 OsteoSponge® Strip 12 mm x 8 mm x 8 mm
109621 OsteoSponge® Strip 50 mm x 5 mm x 5 mm
109622 OsteoSponge® Strip 50 mm x 7 mm x 5 mm
109631 OsteoSponge® Strip 20 mm x 14 mm x 5 mm
109632 OsteoSponge® Strip 20 mm x 14 mm x 7 mm
109633 OsteoSponge® Strip 26 mm x 19 mm x 7 mm
109634 OsteoSponge® Strip 30 mm x 10 mm x 7 mm
109635 OsteoSponge® Strip 50 mm x 10 mm x 7 mm
109636 OsteoSponge® Strip 50 mm x 20 mm x 7 mm
109637 OsteoSponge® Strip 26 mm x 19 mm x 7 mm - 2 Units
109638 OsteoSponge® Strip 26 mm x 19 mm x 7 mm - 4 Units
109640 OsteoSponge® Strip 40 mm x 15 mm x 5 mm

Suggested Call Points: All Orthopedics

OsteoSponge® Filler

109405 OsteoSponge® Filler 0.5 cc 2-4 mm chips
109410 OsteoSponge® Filler 1.0 cc 2-4 mm chips
109425 OsteoSponge® Filler 2.5 cc 2-6 mm chips
109550 OsteoSponge® Filler 5.0 cc 2-6 mm chips
109510 OsteoSponge® Filler 10.0 cc 2-6 mm chips
109515 OsteoSponge® Filler 15.0 cc 2-6 mm chips
109530 OsteoSponge® Filler 30.0 cc 2-6 mm chips

Suggested Call Points: All Orthopedics

OsteoSponge® Disc

109501 OsteoSponge® Disc 10 mm (Fits 10 mm defect)
109502 OsteoSponge® Disc 12 mm (Fits 12 mm defect)
109503 OsteoSponge® Disc 14 mm (Fits 14 mm defect)

Suggested Call Points: Neuro, Foot & Ankle
Evidence for Osteoinductive and Osteoconductive Properties

In Vivo Studies (Heterotopic Bone Growth Model)

Bacterin has performed preclinical studies using a heterotopic bone growth model in athymic mice and rats to test the osteoinductive properties of OsteoSponge®. OsteoSponge® is processed using methods that preserve native growth factors contained within the collagen matrix. Neovascularization, osteoid formation, and new bone growth has been consistently observed in subcutaneous and intramuscular implants of OsteoSponge® (Figures 3 and 4).

These results suggest that in addition to providing an excellent natural scaffold for cellular ingrowth and proliferation, OsteoSponge® also contains growth factors. Growth factors signal infiltrating host cells to initiate the formation of new blood vessels and to differentiate into osteoclasts and osteoblasts. This combination of signaling and structure ultimately leads to the formation of new bone.

A Bone Graft Ideally Engineered For Your Needs

In 2004, when developing the first compressible allograft on the market, Bacterin aimed to address the properties for ideal bone replacement and reconstruction techniques. The optimized approach was the development of an allograft that precisely mimicked the architecture of native bone to serve as a conduit for vascular and cellular ingrowth, had malleable and elastic characteristics, and could tolerate compression, tension, torsion and bending without fracturing. In the presence of saline or blood, the allograft could compress then expand to fill a void, would not dissolve, and could retain its macro-structure for days to weeks while the patient’s own cells remodel and repair the injury. The allograft would possess osteoinductive properties, provide a strong osteoconductive structure, be readily resorbed and biocompatible, and easy to use. When combined with bone marrow aspirate-derived stem cells, an ideal product would mimic autograft in its healing properties (Figures 3 and 4).

With this concept in mind, Bacterin developed OsteoSponge®, a demineralized cancellous bone product with demonstrated osteoinductive activity and osteoconductive characteristics. Surgical case series performed by multiple orthopedic surgeons have confirmed its unique handling properties. OsteoSponge® compresses to less than 1/3 of its original size without breaking or tearing. With its porous structure and large surface area, OsteoSponge® exposes more native proteins and growth factors to cells residing within the graft environment. Since it can absorb its weight in fluid when hydrated, it is ideal to use with bone marrow aspirate. OsteoSponge® is processed in an AATB-accredited and FDA-inspected tissue bank and terminally sterilized by low-dose gamma irradiation. It can be easily stored, having a shelf life of five years. More simply put, Bacterin was very successful in creating a compressible allograft with osteoconductive and osteoinductive properties to better meet the needs of surgeons and their patients.
Every product Bacterin distributes features device-level sterility
If you were to see our processing facility, you would see how transparent we are. Our production area is surrounded by clear walls with an observation walkway that allows for visibility into all of our cleanrooms. We process in Class 100 cleanrooms utilizing aseptic technique at every step of the process. Because safety is so important to us, all products are terminally sterilized via low-dose gamma irradiation in the final package.

Equally important to us is allograft integrity. We process each graft using the highest level of manual craftsmanship to naturally clean the bone. Cleaning and decontamination soaks required for processing human allograft tissue are also used at Bacterin, only we have optimized the nature and concentrations of the reagents used, while also minimizing the time of exposure. This increases the performance of our allografts by preserving as many native BMPs and growth factors as possible. If you are using allografts that have natural coloration, you know you have a good product, especially in comparison to products that have been over-treated resulting in a bright, unnaturally white color.

Quality and Consistency are additional characteristics that set us apart from the rest. With our proprietary scaffolds, you can rest assured that you are getting quality allografts, every time. We also take pride in providing accurate measurements for all of our products. For OsteoSponge® and OsteoWrap®, which are known for their handling characteristics, we test EVERY graft as a processing step so you can count on the performance of the graft to handle appropriately in every case.

Bacterin - Just a Click Away
If you would like access to Bacterin’s Online Customer Service Portal, please contact our Customer Service Department for an application. Our portal will provide you with easy access for submitting online orders, a training calendar, available downloads such as published papers, whitepapers, technique guides, instructions for use, and educational videos. We look forward to adding you as part of our online community and making access to information available at the click of a button.

How to Order
To place an order, or to contact Customer Service:

Phone: 888-886-9354
Fax: 406-388-3380
CS@bacterin.com