The unique biologic and physical properties of amnion and amnion chorion (BioXclude) allograft allow it to be used as a wound covering, in a multilayer of dental implant / periodontal / oral maxillofacial applications which include 5.10. 11, 14, 18-25.

### Applications
- Socket Preservation
- Implants
- Peri-Implantitis
- Ridge Augmentations
- Sinus/Flap Perforations
- Oral Wounds
- Adhesion Barrier
- Nerve Repair

### Clinical Cases
Below are three cases highlighting the use of BioXclude in dental surgery. Please visit www.SnoasisMedical.com/ClinicalCases to review additional cases and published scientific and clinical research.

#### Site Preservation (A)
Exposure healing at 3 days with partial graft covering the exposed part of the ridge.

#### Immediate Implant (B)

#### Periimplant Defect (A)
Primary closure with a combination of BioXclude and BioGide.

#### Leaving BioXclude Exposed
BioXclude may be left exposed to the oral environment when used on its own over grafted extraction sockets and immediate implants (left). It can also be left exposed in ridge augmentations when placed over a collagen membrane (below).

- BioXclude placed over exposed roots and defects covered with Maxcess collagen (right).
- Excellent healing is observed at 11 weeks showing newly formed bone.

When using BioXclude on its own for ridge augmentations, where its only physical requirement is to contain the graft material (particulate, putty, block), primary closure should be obtained. However, very small gaps present after closing the site, should heal over without incident (below).

- BioXclude over Collagen (B): Augmented ridge covered with BioGide over the top. Primary closure was not obtained the length of the site but was marginal.

- Excellent healing is observed at 11 weeks showing newly formed bone.

### Sizing, Storage, and Ordering
Using a larger piece makes placement much easier as it can fold on itself and/or multiple pieces overlap another. The allograft also contains biological factors to aid healing. For these reasons, clinicians are encouraged to order larger sizes of BioXclude than they would when purchasing a traditional barrier membrane. To place an order, please call us at 866-521-8247 or download an order form at www.SnoasisMedical.com/order. Thank You!

<table>
<thead>
<tr>
<th>BioXclude &amp;</th>
<th>Product Code</th>
<th>Size (cm)</th>
<th>1 x 13</th>
<th>1 x 25</th>
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<td>$89</td>
<td>$105</td>
<td>$119</td>
<td>$179</td>
</tr>
</tbody>
</table>

* Contact Snoasis Medical for first-time buyer specials, bulk discounts, and university and government pricing.

Tel: 866-521-8247
Fax: 729-259-1495
info@snoasismedical.com
www.SnoasisMedical.com

### Biological
- Can be left exposed
- Suppresses inflammation
- Aids in the formation of clinical attachment
- Allows for rapid establishment of blood supply
- Cellular occlusive with rapid sealing of protected space

### Physical
- Lacks rigidity and is self-adhering with excellent adaption • Place over exposed roots and seated implants • Place up or down and may fold over itself • No trimming required • Extremely thin
**Barrier Membrane Properties**

BioXclude’s physical properties allow clinicians to avoid many of the drawbacks associated with traditional collagen and synthetic membranes, which can help simplify the procedure, allow for less invasive surgery, and reduce chair time6-9.

**Benefits**

- No trimming required
- Extremely thin; does not add meaningful bulk to the site
- Lacks rigidity and is self-adherent with excellent adaption
- Place dry or after flash hydration
- Place UP or DOWN and may fold onto itself
- Can be placed over exposed roots and seated implants
- May be placed over or under other membranes, meshes, or palatal tissue

**Safety**

BioXclude is safe for patients. The placental tissue used in BioXclude is procured and processed according to regulations established by the FDA and the standards of the AATB. The medical use of amnion tissue dates back over 100 years. During this time, there has never been a report of disease transmission, graft rejection, or an immune response10, 15.

**Supports Angiogenesis**: A key determinant of success in any procedure is adequate blood supply. Koob et al. demonstrated soluble angiogenic growth factors within the allograft stimulated the proliferation and migration of human microvascular endothelial cells and caused the production and release of all 38 tested angiogenic growth factors8. When using BioXclude, the combination of angiogenic growth factors, neovascularization, and subsequent resorption of the allograft, allows for rapid establishment of blood supply11, 12, 15.

**Role of Laminin-5**: BioXclude provides a protein enriched matrix, which includes a high concentration of the ECM protein, laminin-5. Laminin-5 is important due to its high affinity for the cellular adhesion of gingival epithelial cells and the prominent role it plays in the migration and attachment of directly attached tooth cells (DAT cells) to the root of the tooth14-17. This helps explain why BioXclude may be placed over exposed roots, aids in the formation of clinical attachment, and allows for rapid wound closure when left exposed to the oral environment9, 10, 13-15.

**Hastens Flap Re-Attachment**: In repeating the classic 1968 Hiatt attachment study, Holtsclaw et al. performed computerized recontouring of the entire maxilla on a 54 year old male smoker, with chronic periodontitis17. BioXclude was placed on one side, nothing on the other (control), and the flaps reapproximated and secured. The tensile strength (in grams) required to separate the gingival flap from the underlying structures was measured at different time points. At one week, the control side was easily displaced, whereas the BioXclude side had nearly 500% greater resistance, with only a small amount of gingival displacement. Another study has shown amnion allograft prevented post-operative gingival recession15. These studies support why clinicians can reflect a larger flap when using BioXclude.

**The Benefit of the Chorion Layer**: The use of amnion only allografts dates back over 100 years. BioXclude was the first, and still is the only amnion tissue allograft composed of both the amnion and chorion tissue layers. In addition to being much thicker than the amnion layer, an analysis of these tissues revealed the chorion layer contains over 80% more cytokines and structural non-collagenous proteins16. For this reason, amnion chorion allografts (BioXclude) are not only more durable from a physical perspective, but also possess greater amounts of biological factors compared to amnion only allografts.
BioXclude is minimally manipulated amnion chorion allograft tissue for use as a wound covering in dental surgery. Since its introduction in 2010, Snoasis Medical has distributed over 32,000 grafts of BioXclude. This allograft represents a paradigm shift in regenerative technology. Its unique physical and biologic properties provide the benefits of a growth factor and a barrier membrane. The placental tissue used in BioXclude is obtained from consenting mothers who donate their placentas after elective caesarian section delivery. The tissue is then processed using Purion®10, a patented, tissue processing technology designed to cleanse and maintain the delicate structures of the tissue. Following processing, the allografts are packaged and terminally sterilized (SAL10-6). This methodology allows for retention of the biological factors found within BioXclude with over 55 identified to date1-4.

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- Place UP or DOWN and may fold onto itself
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**Growth Factor Properties**

<table>
<thead>
<tr>
<th>Biological Factors</th>
<th>BioXclude</th>
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<tbody>
<tr>
<td>PDGFβ, β</td>
<td>X</td>
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<tr>
<td>TGFβ, β</td>
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<tr>
<td>IPGF</td>
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<td>PLGF</td>
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<td>TIMP-1, 2, 4</td>
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<tr>
<td>Laminin, 5</td>
<td>X</td>
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</table>

**Barrier Membrane Properties**

BioXclude’s physical properties allow clinicians to avoid many of the drawbacks associated with traditional collagen and synthetic membranes, which can help simplify the procedure, allow for less invasive surgery, and reduce chair time5-7.

**Benefits**
- Allows for excellent early healing
- Aids in the formation of clinical attachment
- Supports Angiogenesis
- Cellular occlusive with rapid sealing of protected space
- Rapid wound closure when left exposed
- Allows for rapid establishment of blood supply
- Shown to recruit mesenchymal stem cells
- Suppresses inflammation
- For excellent early healing

**Safety**

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**Dry BioXclude prior to placement; orientation does not matter; the allograft can be placed UP or DOWN.**
Applications

The unique biologic and physical properties of amnion and amnion chorion (BioXclude) allograft allow it to be used as a wound covering, in a multitude of dental implant / periodontal / oral maxillofacial applications which include 5, 6, 10, 14, 20-24:

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Clinical Cases

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Product Fact Sheet

The unique physical and biologic properties of BioXclude give it the benefits of a barrier membrane AND growth factor.

Physical

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Biological

- Can be left exposed
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