For over two decades, LifeCell™ has developed innovative products for use in a wide range of applications.

- **1986** LifeCell™ Corporation formed
- **1994** AlloDerm™ RTM for breast reconstruction (available in bilateral pairs)
- **1994** AlloDerm™ RTM for burn treatment
- **1998** AlloDerm™ RTM for head and neck reconstruction
- **2000** BioHorizons begins distribution of AlloDerm™ RTM
- **2004** AlloDerm™ RTM for challenging hernia repair
- **2006** AlloDerm™ RTM for breast reconstruction
- **2009** Strattice™ RTM EU
- **2010** Breast plastic surgery with Strattice™ RTM BPS
- **2011** AlloDerm™ RTM Ready to use
- **2011** AlloDerm™ RTM for breast reconstruction available in bilateral pairs
- **2016** Artia™ Reconstructive Tissue Matrix
- **2016** Strattice™ Reconstructive Tissue Matrix (RTM)
Since its introduction to dentistry in 1994, AlloDerm® Regenerative Tissue Matrix (RTM) has been a widely accepted acellular dermal matrix (ADM) for soft tissue applications. AlloDerm® RTM supports tissue regeneration by allowing rapid revascularization, white cell migration and cell population – ultimately being transformed into host tissue for a strong, natural repair. (Thickness ranges from 0.9-1.6mm)

• most published ADM in implant dentistry
• reduced post-operative complications as shown in trials¹
• randomized clinical trials indicated no statistical difference to connective tissue for recession coverage²

applications include³
• root coverage
• gingival augmentation
• soft tissue ridge augmentation
• soft tissue augmentation around implants

“Compared to palatal CTG, AlloDerm™ provides superior esthetics and a more pleasant experience for the patient, especially when treating multiple teeth. The palate is no longer a factor in patient acceptance or the number of teeth that can be treated in a single appointment.”

Edward P. Allen, DDS, PhD

Before use, physicians should review all risk information, which can be found in the AlloDerm™ RTM Instructions for Use.

ordering information

<table>
<thead>
<tr>
<th>ALLODERM 1x1</th>
<th>AlloDerm™ 1 cm x 1 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALLODERM 1x2</td>
<td>AlloDerm™ 1 cm x 2 cm</td>
</tr>
<tr>
<td>ALLODERM 1x4</td>
<td>AlloDerm™ 1 cm x 4 cm</td>
</tr>
<tr>
<td>ALLODERM 2x4</td>
<td>AlloDerm™ 2 cm x 4 cm</td>
</tr>
</tbody>
</table>

AlloDerm™ RTM case images courtesy of Dr. Edward P. Allen, Dallas, Texas
# Mechanism of Action

The processing of a biological material ultimately impacts the clinical outcome.

## LifeCell Processing Method

<table>
<thead>
<tr>
<th>Processing</th>
<th>Body's Response</th>
<th>Mechanism of Action</th>
<th>Clinical Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>LifeCell</td>
<td>Accept / Integrate</td>
<td>Regeneration</td>
<td>• supports rapid revascularization and repopulation by host tissue</td>
</tr>
<tr>
<td></td>
<td>via regenerative process</td>
<td>scaffold facilitates tissue regeneration capability which transitions to functional host tissue</td>
<td>• minimal inflammatory or foreign body response*</td>
</tr>
</tbody>
</table>

## Alternative Processing Methods

<table>
<thead>
<tr>
<th>Processing</th>
<th>Body's Response</th>
<th>Mechanism of Action</th>
<th>Clinical Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damaging or denaturing processing of a biological material</td>
<td>Attack / Breakdown</td>
<td>Fibrotic Scar inflammatory cell repopulation; resorption of damaged scaffold; replaced with fibrotic scar</td>
<td>• similar to resorbable synthetic</td>
</tr>
<tr>
<td></td>
<td>via inflammatory response</td>
<td></td>
<td>• sub-optimal long-term strength associated with scar tissue</td>
</tr>
<tr>
<td>Intentionally cross-linking a biological material</td>
<td>Attack / Isolate / Extrude</td>
<td>Encapsulation scaffold is resistant to enzymatic digestion; blocks normal mechanisms of cell ingrowth and vascular ingrowth</td>
<td>• may be contractile</td>
</tr>
<tr>
<td></td>
<td>via foreign body response</td>
<td></td>
<td>References: 4-13</td>
</tr>
</tbody>
</table>

*Demonstrated in primate studies.*
**AlloDerm™ RTM**
1) Intact basement membrane
2) Papillary dermis
3) Basket weave configuration
4) Reticular dermis

**Human Dermis** (100x, H&E stained)
1) Cells
2) Epidermis
3) Papillary dermis
4) Reticular dermis
5) Basement membrane

**Puros® Dermis**
1) Modified basement membrane, no undulation
2) Cellular remnants

**Mucograft®**
1) No basement membrane
2) Modified collagen bundle

**PerioDerm®**
1) Separation between collagen bundles
2) Cellular remnants
Tunnel Technique
as described by Edward P. Allen, DDS, PhD

Treating multiple tooth recession defects traditionally requires a significant palatal tissue harvest to adequately supply enough donor material to successfully treat the defect. This often can lead to undesired surgical and postsurgical sequelae for both the surgeon and the patient. AlloDerm™ RTM can be used as an effective alternative to palatal tissue in a wide variety of intraoral applications. The following is an example of a suggested surgical technique for treating recession defects around teeth. This technique can be modified to be applicable to similar clinical presentations.

This content is only intended as a reference. Proper surgical procedures and techniques are the sole responsibility of the dental professional. Each surgeon must evaluate the appropriateness of the techniques based on his or her own dental training and expertise.

For more details about this technique, please refer to:

Dr. Allen is a consultant for BioHorizons.

1) pre-op

This technique will demonstrate the Tunnel Technique for root coverage grafting with AlloDerm™ RTM. Rehydrate the AlloDerm™ RTM according to the instructions for use (IFU) provided with the product.

Gingival recession involving 4 maxillary teeth, the left lateral incisor through the left second premolar. There is no loss of interdental bone or soft tissue fill. Typical Miller Class I or II recession defects are noted.
2) intrasulcular incisions

Using an End-Cutting Intrasulcular Knife or similar microsurgical instrument, make intrasulcular incisions facially and proximally around each tooth with recession defects, as well as one additional tooth anterior and posterior to the teeth with recession.

3) blunt dissection

A microsurgical elevator is used to elevate a mucoperiosteal pouch 4-5mm apical to the mucogingival junction at each tooth with recession as well as an additional tooth mesially and distally to facilitate tissue mobilization. Extend the blunt dissection under the papillae facially.

4) sharp dissection

Using a Modified Orban Knife, sharp dissect immediately supraperiosteally to mobilize and extend the tunnel 12-15mm apical to the gingival margin at each tooth with recession as well as an additional tooth mesially and distally. **Stay in contact with bone to ensure a patent tunnel.**
surgical technique

5) elevate papillae interdentally

Detach the papillae from the interdental bone crest using a Younger-Good curette or similar instrument. Extend this blunt (subperiosteal) elevation to the palatal line angles.

6) AlloDerm™ RTM insertion

Trim the graft to extend from the distal of the central incisor to the mesial of the molar, with a vertical dimension of 8mm. The graft is inserted into the sulcus of a terminal tooth with recession and passed through the tunnel using a Younger-Good curette or similar instrument. Orient the graft with the reticular (connective tissue) side facing bone.

7) AlloDerm™ RTM alignment

The graft should be positioned to extend from the distal of the central incisor to the mesial of the molar so that it lies completely under the papillae mesial and distal to the teeth with recession.
8) preparation for suturing
Displace the graft within the tunnel so that the coronal border of the graft is level with the tissue margin in preparation for simultaneous coronal advancement of the graft with the overlying tissue. The recommended suture is a 6-0 monofilament polypropylene.

NOTE: A continuous sling suture or interrupted sling sutures may be used.

9a) continuous sling suture
Penetrate the overlying tissue and graft at the distal root line angle of the second premolar, 4mm apical to the tissue margin. Exit through the sulcus and pass the needle through the distal embrasure, around the palatal aspect and back to the facial through the mesial embrasure.

9b) continuous sling suture
Pass under the papilla from the second premolar toward the first premolar:
surgical technique

9c) continuous sling suture

Penetrate the overlying tissue and graft at the distal root line angle of the first premolar and repeat the previous steps until reaching the lateral incisor.

9d) continuous sling suture

After passing around the palatal of the lateral incisor and returning to the facial through the mesial embrasure, penetrate the overlying tissue and graft at the mesial root line angle.

9e) continuous sling suture

Work back to the starting point, always passing under the papillae. The suture will be tied only at the distal of the second premolar.
surgical technique

10) interrupted sling sutures

Penetrate the overlying tissue and graft at the distal root line angle of the second premolar, 4mm apical to the tissue margin. Exit through the sulcus and pass the needle through the distal embrasure, around the palatal aspect and back to the facial through the mesial embrasure. Penetrate the overlying tissue and graft at the mesial root line angle of the second premolar 4mm apical to the tissue margin, pass through the mesial embrasure around the palatal aspect of the second premolar and return to the facial through the distal embrasure. Tie the suture and repeat the process for each tooth. Ideally, the graft should be completely covered. Exposure of 1mm or less should not impact the outcome.

11) post-op - suture removal

Sutures are removed at 2 months. Sutures may be removed earlier in some cases although it is more comfortable for the patient to wait until the swelling has completely subsided before suture removal. Complete root coverage in Miller Class I and II recession with an increase in marginal tissue thickness and stability should be achieved.

Hu-Friedy® Sutures

• 300 Series Stainless Steel, the ideal alloy for dental suture needles, ensures a strong sharp needle pass after pass
• Manufactured from a stronger alloy composition, increasing ductile strength - if the needle does bend, it is less likely to break when reshaping
• Finer point geometry for smooth tissue penetration, requiring up to 20% less force* than other suture needles
• Laser-drilled needles for reduced tissue disruption

Dr. Edward P. Allen’s Recommended Suture

For use in oral plastic surgery procedures

Perma Sharp® Suture
6-0 Polypropylene 18”, C-17.
Finer point geometry for smoother penetration.

*Data on file at Hu-Friedy®. Call for availability.
Allen Oral Plastic Surgery Kit

Developed by Dr. Edward P. Allen, this comprehensive kit provides precision microsurgical instruments specifically designed for invasive soft tissue grafting procedures.

- HF-ALLENKIT  Allen Oral Plastic Surgery Kit
- HF-SYRCW  Cook-Waite Anesthetic Aspirating Syringe, 1.8ml
- HF-NHM-5026R  Micro Castroviejo, Straight, Diamond Dusted
- HF-PCP116  Color-Coded Probe 3-6-8-11
- HF-10-130-05  #5 Scalpel Handle, Round, Straight
- HF-SYG7/89E2  Younger-Good 7/8 EverEdge® (2 per kit)
- HF-PPAELPX  Allen Periosteal Elevator, Posterior, Black Line
- HF-PPAELX  Allen Periosteal Elevator, Black Line
- HF-PPAELAX  Allen Periosteal Elevator, Anterior, Black Line
- HF-SP20  Corn Suture Pliers

Call for availability.
HF-S5080  Goldman-Fox Perma Sharp® Scissors, Straight

HF-ALLENCARD  Allen Membrane Measurement Card

HF-KO12KPO3R9  Allen Modified Orban Knife 1/2, Round, EverEdge®

HF-MIR5/3  #5 Front Surface Mouth Mirror, 3 pack

HF-MH6  #6 Satin Steel® Mirror Handle (2 per kit)

HF-KPAX  Allen End-Cutting Intrasulcular Knife, Black Line

HF-8-905DD  Precision Dressing Forceps, Diamond Dusted

HF-KO12KP3R49  Allen Arrowhead Knife

HF-MCUPE  Immunity Steel Cup, Modified

additional items available individually

HF-KO12KPO3AR  Allen Modified Orban Knife 1/2, Round, #6 Satin Steel® Handle

HF-KO12KPO3A6  Allen Modified Orban Knife 1/2, #6 Satin Steel® Handle

HF-KO12KPO3A9  Allen Modified Orban Knife 1/2, EverEdge®

Call for availability.


3. Reference manufacturer’s Instructions for Use (IFU) package insert.


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