New Frontiers

Current Treatment Approaches for Chondral Lesions in the Patellofemoral Joint

Chondral Lesion

- Non-Operative
  - Physical Therapy
  - NSAIDs
  - Corticosteroid Injections
  - Hyaluronic Acid Visco-supplementation

- Operative
  - With failure
    - Lesion Characteristics
      - Small, coincidental
        - Debridement
      - Small, focal
        - Microfracture
      - Large, focal
        - Cell based therapies
      - Small, w/ bone involvement
        - OATS (difficult due to curvature and thickness matching)
      - Very large (>4cm²)
        - OC allografts
      - Very large, arthritis
        - Patellofemoral Arthroplasty

- Severe defects, salvage procedures


1-Step Cartilage Repair – Landscape of Marketed & Pipeline Products

Credit: Histogenics
Near Term Cell Therapy Products for US Launch

<table>
<thead>
<tr>
<th>Product</th>
<th>Company</th>
<th>Description</th>
<th>Phase</th>
<th>Exp Launch Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACI</td>
<td>Vericel Corporation</td>
<td>Expanded autologous cells expanded seeded on Type I/III collagen membrane (porcine from Matricel); fibrin glue</td>
<td>BLA submitted</td>
<td>2017</td>
</tr>
<tr>
<td>NeoCart</td>
<td>Histogenics</td>
<td>Tissue engineered cartilage from autologous cells; collagen scaffold, collagen-PEG glue</td>
<td>End of Phase 3</td>
<td>2019</td>
</tr>
<tr>
<td>NovoCart 3D</td>
<td>Aesculap</td>
<td>Expanded autologous cells in collagen matrix (“biphasic”), no processing; ready in 3 weeks</td>
<td>Phase 3</td>
<td>2021</td>
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<tr>
<td>Revaflex</td>
<td>ISTO Technologies</td>
<td>Scaffold-less juvenile chondrocytes expanded in sheets; allograft</td>
<td>Phase 2b</td>
<td>2023</td>
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</tbody>
</table>

U.S. Pipeline: Key Cell Therapy Products

Credit: Histogenics