The Beauty of Biology and the Power of Regenerative Medicine
Forward-Looking Information

This presentation contains forward-looking statements. Forward-looking statements are generally identifiable by the use of words like "may," "will," "should," "could," "expect," "anticipate," "estimate," "believe," "intend," or "project" or the negative of these words or other variations on these words or comparable terminology. The reader is cautioned not to put undue reliance on these forward-looking statements, as these statements are subject to numerous factors and uncertainties outside of our control that can make such statements untrue, including, but not limited to, inadequate capital, adverse economic conditions, intense competition, lack of meaningful research results, entry of new competitors and products, adverse federal, state and local government regulation, termination of contracts or agreements, technological obsolescence of our products, technical problems with our research and products, price increases for supplies and components, inability to carry out research, development and commercialization plans, loss or retirement of key executives and research scientists and other specific risks. We currently have no commercial products intended to diagnose, treat, prevent or cure any disease. The statements contained in this presentation regarding our ongoing research and development and the results attained by us to-date have not been evaluated by the Food and Drug Administration. There can be no assurance that further research and development, and/or whether clinical trial results, if any, will validate and support the results of our preliminary research and studies. Further, there can be no assurance that the necessary regulatory approvals will be obtained or that we will be able to develop new products on the basis of our technologies. In addition, other factors that could cause actual results to differ materially are discussed in our Annual Report on Form 10-K/A filed with the SEC and our most recent Form 10-Q filings with the SEC. Investors and security holders are urged to read these documents free of charge on the SEC's web site at www.sec.gov. We undertake no obligation to publicly update or revise our forward-looking statements as a result of new information, future events or otherwise.
Cardium: Business Model
Conserved Operating Cost Structure

1. science & medicine
2. regulatory matters & process engineering
3. business & finance
4. marketing & sales with strategic partners & distributors

contract manufacturing & suppliers
Corporate Development Considerations

**Holding Company**
Ticket Symbol: CRXM

**Equity Investments:**
- Activation Therapeutics
- Angionetics Inc.
- Healthy Brands Collective

**Activation Therapeutics**
- Excellagen
- ExcellagenMX
- ExcellarateGx
- Excellastem
- Excellagederm
- Excellagenasc
- Excellagenccm

**Strategic Partner or Independently Monetize**

**TAXUS CARDIUM PHARMACEUTICALS GROUP**

**Generx**
[Ad5FGF-4]
Phase 3 Global Clinical Study Program
- United States
- Russian Federation
- China
- European Union

**Strategic Partner or Independently Monetize**
Generx®
Phase 3 Product Candidate
[Ad5FGF-4]
Angiogenic Gene Therapy

Recent NEWS

Reports Positive Interim Phase 3 Clinical Data Showing Significant Efficacy of Generx® Angiogenic Gene Therapy for Myocardial Ischemia due to Coronary Artery Disease at the 2014 BIO International Convention

Reports on the Formation of Angionetics, Inc. and Initial Private Funding Based on $20 Million Post-Money Valuation Focused on Global Development of Generx® to Establish Angionetics as an Independent Company with Direct Access to Capital Market to Fund Generx® Clinical Development Program

Announces Co-Development Program with Dr. Reddy’s Laboratories to market and sell Generx® in Russian Federation, the CIS and Certain Other International Markets

Recent NEWS

3Q/14
BIO International Convention

1Q/15
Dr. Reddy’s

2Q/15
angionetics
“Researchers and Investors Toast Renewed Optimism for New Gene Therapies”

FierceBiotech
THE BIOTECH INDUSTRY’S DAILY MONITOR
September 29, 2014
More Gene Therapy in the News

First-In-Class Oncolytic Immunotherapy (HSV-GM-CSF) for Metastatic Melanoma. Direct Injection into Lesion Site

FDA Advisory Panel Supports Approval of New Gene Therapy. Decision Anticipated by October 2015
Gene Therapy in the News

Novel Gene Therapy for Severe Combined Immunodeficiency (SCID) “Bubble Boy” Disease

April, 2015
## The New Valuation Dynamics of Late-Stage Gene Therapy Public Companies

<table>
<thead>
<tr>
<th>Company</th>
<th>Stock Symbol</th>
<th>Market Cap</th>
<th>Tech Value</th>
<th>Clinical Stage</th>
<th>Lead Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avalanche Biotechnologies</td>
<td>AAVL</td>
<td>$800 Mil</td>
<td>$640 Mil</td>
<td>Phase 2a</td>
<td>Gene Therapy for Ophthalmic Diseases</td>
</tr>
<tr>
<td>Bluebird Bio</td>
<td>BLUE</td>
<td>$4.5 Bil</td>
<td>$4.0 Bil</td>
<td>Phase 2/3</td>
<td>Gene Therapy for Rare Genetic Disorders</td>
</tr>
<tr>
<td>Juno Therapeutics</td>
<td>JUNO</td>
<td>$4.0 Bil</td>
<td>$3.5 Bil</td>
<td>Phase 1/2</td>
<td>Cell-Based Cancer Immunotherapies</td>
</tr>
<tr>
<td>Spark Therapeutics</td>
<td>ONCE</td>
<td>$1.4 Bil</td>
<td>$1.3 Bil</td>
<td>Phase 3</td>
<td>Gene Therapy for Inherited Retinal Dystrophies</td>
</tr>
<tr>
<td>Sangamo Biosciences</td>
<td>SGMO</td>
<td>$870 Mil</td>
<td>$700 Mil</td>
<td>Phase 2</td>
<td>DNA Binding Proteins</td>
</tr>
<tr>
<td>uniQure</td>
<td>QURE</td>
<td>$520 Mil</td>
<td>$463 Mil</td>
<td>U.S. Phase 3 European Approval</td>
<td>Gene Therapy for Lipid Lowering and Congestive Heart Disease</td>
</tr>
</tbody>
</table>

Source: angionetics
Corporate Development Strategy: “Value Unlock”
### Current Capital Stock: Post-2013 Recapitalization

<table>
<thead>
<tr>
<th>Group</th>
<th>Stock</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investors</td>
<td>9.3 Mil</td>
<td>63%</td>
</tr>
<tr>
<td>Strategic Partner</td>
<td>3.5 Mil</td>
<td>24%</td>
</tr>
<tr>
<td>Subtotal</td>
<td>12.8 Mil</td>
<td>87%</td>
</tr>
<tr>
<td>Conv. Preferred Stock</td>
<td>1.8 Mil</td>
<td>13%</td>
</tr>
<tr>
<td>Total</td>
<td>14.6 Mil</td>
<td>100%</td>
</tr>
<tr>
<td>Memo: Employee Warrants</td>
<td>4.3 Mil</td>
<td>X</td>
</tr>
</tbody>
</table>

### Sensitivity Analysis: Potential Unrealized Gene Therapy Technology Value Within CRXM Stock Price

<table>
<thead>
<tr>
<th>Tech Value</th>
<th>Current Ownership Level</th>
<th>Outstanding Capital Stock</th>
<th>CRXM Tech Value Per Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>$20 Mil</td>
<td>85%</td>
<td>14.6Mil</td>
<td>$1.15/Share</td>
</tr>
<tr>
<td>$50 Mil</td>
<td>85%</td>
<td>14.6Mil</td>
<td>$2.90/Share</td>
</tr>
<tr>
<td>$100 Mil</td>
<td>85%</td>
<td>14.6Mil</td>
<td>$5.80/Share</td>
</tr>
<tr>
<td>$200 Mil</td>
<td>85%</td>
<td>14.6Mil</td>
<td>$11.50/Share</td>
</tr>
<tr>
<td>$300 Mil</td>
<td>85%</td>
<td>14.6Mil</td>
<td>$17.50/Share</td>
</tr>
</tbody>
</table>

**Target:** Valuation Alignment with Gene Therapy Peer Group
GENERX® [Ad5FGF-4]
Product Candidate

ANGIOGENIC GENE THERAPY

Advances in Coronary Revascularization

Coronary Angiography By-Pass Surgery Angioplasty Bare Metal Stents Drug Eluting Stents Microvascular Gene Therapy

Every 10 Years Something Big Happens!
<table>
<thead>
<tr>
<th>Product Candidate Designation</th>
<th>Clinical Study</th>
<th>Clinical Status</th>
<th>Medical Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generx® GX-100</td>
<td>International Phase 3 Registration</td>
<td>Current Study (ASPIRE)</td>
<td>Myocardial Ischemia</td>
</tr>
<tr>
<td>Generx® GX-200</td>
<td>U.S.-Based Phase 3 Fast Track</td>
<td>FDA-Cleared (AWARE)</td>
<td>Angina Pectoris (Female Pattern)</td>
</tr>
<tr>
<td>Generx® GX-300</td>
<td>U.S.-Based Phase 2</td>
<td>Planning Process Initiated</td>
<td>Cardiac Syndrome X</td>
</tr>
<tr>
<td>Generx® GX-400</td>
<td>U.S.-Based Phase 2 (Orphan Indication)</td>
<td>Planning Process Initiated</td>
<td>Angina Inversa</td>
</tr>
</tbody>
</table>
Generx® [Ad5FGF-4]
Cardiac Microvascular Gene Therapy
One-Time Treatment During Standard Angiographic Procedure

Clinical Study Efficacy Equivalent to ByPass Surgery or Percutaneous Coronary Intervention
Cardiac Microvascular Gene Therapy

<table>
<thead>
<tr>
<th>ASPIRE &amp; AGENT-2* SPECT Clinical Efficacy Endpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement in Reversible Perfusion Defect Size as Measured by SPECT Imaging</td>
</tr>
<tr>
<td>Baseline Pre-Generx Treatment</td>
</tr>
<tr>
<td>4 Weeks Following Generx Administration</td>
</tr>
<tr>
<td>8 Weeks-77% Improvement in Perfusion (RPDS)</td>
</tr>
</tbody>
</table>

World’s leader in cardiac angiogenic gene therapy for coronary artery disease

U.S. Phase 3 clinical study with *Fast Track* status cleared with FDA

International Phase 3 clinical study advancing with new Dr. Reddy’s Laboratories co-development strategic partnership

Current Phase 3 study interim analysis supports > 75% efficacy response (p=0.01) continued safety & well tolerated

Primary clinical efficacy endpoint perfusion response aligns with bypass surgery & stents

Multiple products from Generx technology platform diversifies clinical risk

Refractory Angina is a large unmet medical need with billion dollar revenue potential

Advancing forward with plans as independent company to enhance access to capital markets

Significant stock price upside opportunity for investors based on CRXM technology value alignment with gene therapy peer group companies

Process engineering complete and no further capital required for commercial manufacturing

Highly conserved operating and infrastructure costs and gross margin from commercial sales

Experienced management team responsible for initial Generx discoveries and continued clinical advancements

Multiple barriers to entry (IP, clinical Dossier & Process Engineering), and potential 12-year exclusivity rights in the U.S. under the Biologics Price Competition and Innovations Act

Accelerating funding for early-stage gene therapy V.C. investments and strategic partnerships (> $3.0 billion since 2014)
Generx® [Ad5FGF-4]
Platform Building Blocks

DNA
FGF-4
Gene

Adenovector & CAR Receptor Delivery System

Proprietary One-Time, Non-Surgical Delivery

Localized Systemic Transfection

Cardiac Angiogenic Response
Generx® [Ad5FGF-4]
Expanding the Cycle of Care

Lifestyle Modifications
Lipid Lowering & Anti-Angina Drugs
Bypass Surgery & Stents

Generx Phase 3
Angiogenic Gene Therapy

Addressable Market:
U.S. $3 Billion
OVS $20 Billion

Refractory Angina & Cardiac Syndrome X
Generx® [Ad5FGF-4]
Therapeutic Objectives

Enhance Exercise Performance

Improve Cardiac Perfusion

Reduce Angina and Medication Usage

Offer New Therapeutic Options
Pioneering Gene Therapy for Cardiac Microvascular Insufficiency

Every 10 Years Something Big Happens!
Generx® [Ad5FGF-4]  
Cardiac Microvascular Gene Therapy  
Targeted Medical Indications

<table>
<thead>
<tr>
<th>Refractory Angina</th>
<th>Cardiac Syndrome X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angina Inversa</td>
<td>“Female Pattern” Angina</td>
</tr>
</tbody>
</table>
## Generx® [Ad5FGF-4]
### Clinical Study: Patient Profile

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>77%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>28%</td>
</tr>
<tr>
<td>Congestive Heart Failure</td>
<td>50%</td>
</tr>
<tr>
<td>Prior Heart Attack</td>
<td>70%</td>
</tr>
<tr>
<td>Prior Bypass Surgery</td>
<td>71%</td>
</tr>
<tr>
<td>Prior Angioplasty</td>
<td>56%</td>
</tr>
<tr>
<td>Three-Vessel Disease</td>
<td>48%</td>
</tr>
<tr>
<td>Angina Class-2</td>
<td>56%</td>
</tr>
<tr>
<td>Angina Class-3</td>
<td>44%</td>
</tr>
</tbody>
</table>

## Generx® [Ad5FGF-4]

### Clinical Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Phase</th>
<th>Status</th>
<th>Clinical Endpoint</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGENT-1</td>
<td>United States</td>
<td>Phase 1/2 Dose Finding &amp; Safety</td>
<td>Refractory Class 2 – 3 Angina</td>
<td>Exercise Treadmill Time</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGENT-2</td>
<td>North America</td>
<td>Phase 2a Mechanism of Action Study</td>
<td>&gt;9% Reversible Perfusion Defect</td>
<td>SPECT Imaging</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGENT-3</td>
<td>North America</td>
<td>Phase 2b/3</td>
<td>Refractory Class 2 – 4 Angina</td>
<td>Exercise Treadmill Time</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGENT-4</td>
<td>Western Europe &amp; South America</td>
<td>Phase 2b/3</td>
<td>Refractory Class 2 – 4 Angina</td>
<td>Exercise Treadmill Time</td>
<td>252</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASPIRE</td>
<td>Russian Federation</td>
<td>Phase 3 Registration Study</td>
<td>&gt;9% Reversible Perfusion Defect</td>
<td>SPECT Imaging</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWARE</td>
<td>United States</td>
<td>Phase 3 Fast Track</td>
<td>Female Pattern Angina</td>
<td>Exercise Treadmill Time (Time to ST Segment Depression)</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>783</strong></td>
</tr>
</tbody>
</table>
## Generx® [Ad5FGF-4]
### Clinical Efficacy Correlations

<table>
<thead>
<tr>
<th>Study</th>
<th>Clinical FDA Regulatory Dossier Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AGENT-1</strong>&lt;br&gt;ETT Endpoint&lt;br&gt;(N = 79)</td>
<td>- Safe and well-tolerated (Treatment Response Correlates to Angina Severity)&lt;br&gt;- Significant improvement in ETT vs. placebo when baseline ETT ≤ 10 min (p=0.01 at 4 wk; p= 0.05 at 12 wk)</td>
</tr>
<tr>
<td><strong>AGENT-2</strong>&lt;br&gt;SPECT Endpoint&lt;br&gt;(N = 52)</td>
<td>- Safe and well-tolerated (77% Response Rate)&lt;br&gt;- Significant cardiac perfusion improvement at 8 wk (p&lt;0.05 vs placebo) similar to CABG and PCI procedures&lt;br&gt;- Parallel trends for improvements in angina frequency and NTG use&lt;br&gt;- Data supports improved myocardial perfusion as Generx mechanism of action</td>
</tr>
<tr>
<td><strong>AGENT-3 / AGENT-4</strong>&lt;br&gt;Meta-Analysis&lt;br&gt;ETT Endpoint&lt;br&gt;(N=532)</td>
<td>- Safe and well-tolerated (Supports “Female Pattern” Angina Thesis)&lt;br&gt;- In females, High Dose vs Placebo:&lt;br&gt;  ETT: 12 wk, p&lt;0.01; 6 mo, p&lt;0.01&lt;br&gt;  Time to ECG Ischemia: 12 wk, p=0.03; 6 mo, p=0.01&lt;br&gt;  CCS Class Improvements:&lt;br&gt;  12 wk, p=0.01; 6 mo, p=0.04; 12 mo, p&lt; 0.01&lt;br&gt;- In Agent-3, males and females exhibited improvement in CCS class at 12 mo (p&lt;0.05)&lt;br&gt;- Substantial placebo response in men, with endpoint ETT comparable to females (over all “improvement” dampened)</td>
</tr>
<tr>
<td><strong>ASPIRE</strong>&lt;br&gt;SPECT Endpoint&lt;br&gt;(N = 11 interim)</td>
<td>- New transient ischemia delivery safe and well-tolerated (86% Response Rate)&lt;br&gt;- Significant cardiac perfusion improvement at 8 wk (p=0.01 vs placebo) similar to AGENT-2 and CABG/PCI</td>
</tr>
</tbody>
</table>
### Angiogenic Gene Therapy: Efficacy Correlations

**AGENT-2 SPECT Clinical Efficacy Endpoint**

<table>
<thead>
<tr>
<th>Improvement in Reversible Perfusion Defect Size as Measured by SPECT Imaging</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong> Pre-Generx Treatment</td>
</tr>
<tr>
<td><strong>4 Weeks Following Generx Administration</strong></td>
</tr>
<tr>
<td><strong>8 Weeks-77% Improvement in Perfusion (RPDS)</strong></td>
</tr>
</tbody>
</table>


### Generx [Ad5FGF-4] U.S. AGENT-2 Clinical Study*:

#### Primary Endpoint*

<table>
<thead>
<tr>
<th>% Improvement in SPECT Reversible Perfusion Defect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Generx</em> 21%</td>
</tr>
<tr>
<td><em>Placebo</em> 4%</td>
</tr>
<tr>
<td>P &lt; 0.05</td>
</tr>
</tbody>
</table>

#### Secondary Endpoint

<table>
<thead>
<tr>
<th>Generx</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>No Angina</em></td>
<td>30%</td>
</tr>
<tr>
<td><em>No NTG Use</em></td>
<td>43%</td>
</tr>
</tbody>
</table>
Angiogenic Gene Therapy: Efficacy Correlations
Agent 3 & 4 Clinical Study
Pre-specified Pooled Sub-Group, Gender-Based Analysis: Women (N = 76)

Henry et al., JACC 50: 1038-46 (2007)
At 12 Months post-treatment, 66% of all patients in both low and high dose groups exhibited statistically significant improvement in CCS Classification (limitation of physical activity due to angina) by 1-3 grades (N=416, P<0.05)
The U.S.-based AGENT-2 clinical study served as the basis for the design of the current ASPIRE Phase 3.
Angiogenic Gene Therapy: ASPIRE Phase 3 Interim Analysis

Generx [Ad5FGF-4]

Primary Endpoint

% Improvement in SPECT Reversible Perfusion Defect Size

Enhanced Angiogenic Microvascular Circulation

Perfusion Response

Generx Placebo

\[ P = 0.01 \]
## SPECT Clinical Study Data Summary

<table>
<thead>
<tr>
<th>Clinical Study</th>
<th>Number of Patients</th>
<th>SPECT Clinical Response $^a$</th>
<th>Patient Responders</th>
<th>$P$-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agent-2</td>
<td>52</td>
<td>+21%</td>
<td>77%</td>
<td>$&lt; 0.05^b$</td>
</tr>
<tr>
<td>Aspire-1</td>
<td>11</td>
<td>+24%</td>
<td>86%</td>
<td>0.01</td>
</tr>
<tr>
<td>Pooled Analysis</td>
<td>63</td>
<td>+25%</td>
<td>79%</td>
<td>0.005</td>
</tr>
</tbody>
</table>

$^a$ Improvement in RPDS as measured by SPECT imaging at 8-weeks following treatment.

## Generx® [Ad5FGF-4]
### Two Cleared Phase 3 Clinical Studies

<table>
<thead>
<tr>
<th>Elements</th>
<th>FDA Phase 3</th>
<th>RMH Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td>Generx® [Ad5FGF-4] (alferminogene tadenovec)</td>
<td>CardioNovo [Ad5FGF-4] (alferminogene tadenovec)</td>
</tr>
<tr>
<td><strong>Clinical Status</strong></td>
<td>FDA Clearance Phase 3 (with Fast Track Status)</td>
<td>RMA Cleared Phase 3 Registration Study</td>
</tr>
<tr>
<td><strong>Clinical Study Population</strong></td>
<td>300 Women Multi-Center, Randomized, Placebo-Controlled Patient Population</td>
<td>100 Men &amp; Women Multi-Center, Randomized, Controlled Parallel-Group Patient Population</td>
</tr>
<tr>
<td><strong>Proposed Medical Indication</strong></td>
<td>Refractory Angina Patients who are not Optimal Candidates for Angioplasty Stents &amp; Bypass Surgery</td>
<td>Refractory Angina Patients who are not Optimal Candidates for Angioplasty Stents &amp; Bypass Surgery</td>
</tr>
<tr>
<td><strong>Clinical Endpoint</strong></td>
<td>Improvement in Exercise Treadmill Time (Δ ST segment Depression)</td>
<td>Improvement in Reversible Perfusion Deficit Based on SPECT Imaging</td>
</tr>
<tr>
<td><strong>Clinical Study Status</strong></td>
<td>Pending Completion of International Studies</td>
<td>Currently Ongoing</td>
</tr>
</tbody>
</table>
**Generx® [Ad5FGF-4]**

**Global Registration Strategy**

Ongoing Phase 3 Aspire International Clinical Study

- Cleared Phase 3 Aware U.S.-Based Clinical Study
- Initiate Clinical & Regulatory Process in China

Final Data Analysis & Regulatory Approval

- Meet w/FDA and Harmonize U.S. & International Protocols
- Seek FDA Breakthrough Technology Designation
- Initiate U.S. Phase 3 Clinical Study

Initiate China Clinical Studies

Russia Marketing & Sales

Initiate China Clinical Studies
### Generx® [Ad5FGF-4]
#### Potential Economic Opportunity

<table>
<thead>
<tr>
<th>Unit Volume Opportunity per Economic Region</th>
<th>Target Revenue per Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level I</td>
</tr>
<tr>
<td></td>
<td>$2,000 / dose</td>
</tr>
<tr>
<td>50,000 doses</td>
<td>$100 Million</td>
</tr>
<tr>
<td>100,000 doses</td>
<td>$200 Million</td>
</tr>
<tr>
<td>150,000 doses</td>
<td>$300 Million</td>
</tr>
<tr>
<td>200,000 doses</td>
<td>$400 Million</td>
</tr>
</tbody>
</table>

Addressable Market: U.S. $3.0 Billion | Global: $20 Billion
Excellagen®
Pharmaceutically-Formulated
Flowable Dermal Matrix

- Excellagen is an FDA-cleared syringe-based aseptically-manufactured, ready use flowable dermal matrix topical gel that promotes the activation of the healing process for the treatment of dermal wounds. It is designed to accelerate granulation tissue growth in non-healing wounds and activates platelets, triggering the localized release of endogenous growth factors including Platelet-Derived Growth Factor (PDGF), a key biologic mediator of wound healing.

- Excellagen is indicated for the treatment of a broad array of wounds including partial and full thickness wounds, pressure ulcers, venous ulcers, diabetic ulcers, chronic vascular ulcers, tunneled/undermined wounds, surgical wounds (donor sites/ grafts, post-Mohs surgery, post-laser surgery, podiatric, wound dehiscence), trauma wounds (abrasions, lacerations, second-degree burns, and skin tears) and draining wounds.
Excellagen®: Technology & Formulation

- High Molecular Weight Fibrillar Type I Bovine Collagen
- FDA-Cleared Specialized Aseptic Process & Clinical Study Data
- Functional Pharmaceutical Excipients

Simple | Flowable | Ready to Use
      Once Weekly Treatment
Excellagen is a pharmaceutically formulated, bovine dermal atelo-collagen homogenate in a 3-D staggered array (fibrillar collagen) dermal matrix.

Endogenous Collagen Assembly

Magnification: 6500X

Magnification: 21000X
Excellagen: Structural Analysis, Cellular Adhesion & Proliferation

Excellagen Scaffold

Histologic evaluation of dermal wound demonstrating infiltration of fibroblasts
Excellagen: Manufactured and Tested to Pharmaceutical Standards

Intact, Full-Length Molecular Structure

SDS-PAGE

Marker  Control  Excellagen

\[ \gamma \ [\alpha_1(1)_2 \ \alpha_2(1)] \]

\[ \beta \ [\alpha_1(1)_2] \]

\[ [\alpha_1(1) \ \alpha_2(1)] \]

\[ \alpha_1(1) \ \alpha_2(1) \]

Intact alpha chains
Excellagen: Second Generation Single Syringe Kit Product Format
Excellagen: Initial Medical Focus

Pharmaceutically-Formulated Fibrillar Collagen Topical Gel (2.6%)

The only syringe-based, flowable, ready to use pharmaceutically-formulated fibrillar collagen, professional use product for wound care management.
Excellagen Treatment: Diabetic Foot Ulcers

1. Debride
2. Treat
3. Bandage
4. Offload

One-week treatment intervals

Excellagen is applied by your physician

www.excellagen.com
Excellagen: Activates Platelets
Triggers Release of Growth Factors

Quaternary fibril structure is required for effective platelet activation by collagen (Brass and Bensusan, JCI, 1974; Santoro and Cunningham, JCI 1977)

Excellagen-Activated Platelet-Derived Growth Factor Release

Excellagen FDA-Approved Instructions for use: “Surgically debride the wound bed using standard methods to ensure wound is free of debris and necrotic tissue. Allow a small influx of blood into the wound before applying Excellagen.”
Formulated collagen gel “…causes a large and rapid time-dependent effect on tissue growth rates.” A single application “increases the healing rate of neuropathic DFUs…”, and more frequent applications “…hold promise to significantly improve overall incidence of complete wound closure.”
Excellagen: Tissue Regeneration Case Studies

Acellular Biological Modulator

% Area Reduction

Healing Prediction Study Baseline¹

0 1 2 3 4 5 6 7 8 9 10 11 12

% Area Reduction

Healing Prediction Study Baseline¹

0 1 2 3 4 5 6 7 8 9 10 11 12

42 Days Stalled: 4 Excellagen® Applications
49 Days to Closure

240 Days Stalled: 5 Excellagen® Treatments
63 Days to Closure

Excellagen® Pharmaceutically-Formulated Collagen Topical Gel Accelerates Healing Rate Immediately After Application in Patients with Diabetic Neuropathic Foot Ulcers²

Matrix: **Tissue Regeneration**

MATRIX Multi-Center Controlled & Randomized Metrics of Tissue Growth Wound Study

<table>
<thead>
<tr>
<th>Bio-Metric</th>
<th>Wound Size Reduction (n = 47)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pharmaceutically-Formulated Collagen 2.6%</td>
<td>Standard of Care</td>
</tr>
<tr>
<td>One Excellagen Treatment</td>
<td>(n = 31)</td>
<td>(n = 16)</td>
</tr>
<tr>
<td>Average Wound Size</td>
<td>3.0 cm²</td>
<td>3.0 cm²</td>
</tr>
<tr>
<td><strong>Matrix Non-Healing Ulcers: Excellagen vs. Control</strong>¹</td>
<td>37%</td>
<td>12%¹</td>
</tr>
<tr>
<td>Wound Size (Area) Reduction @ Week 1</td>
<td>49%</td>
<td>24%¹</td>
</tr>
<tr>
<td>Cumulative Wound Size (Area) Reduction @ Week 2</td>
<td>37%</td>
<td>8%²</td>
</tr>
<tr>
<td>Excellagen vs. Healing Prediction Study²</td>
<td>49%</td>
<td>15%²</td>
</tr>
</tbody>
</table>

Excellagen: Diabetic Foot Ulcers
Post-Marketing Case Studies

Acellular Biological Modulator

42 Days Stalled: 4 Excellagen® Applications
49 Days to Closure

240 Days Stalled: 5 Excellagen® Treatments
63 Days to Closure

Excellagen® Pharmaceutically-Formulated Collagen Topical Gel Accelerates Healing Rate Immediately After Application in Patients with Diabetic Neuropathic Foot Ulcers

Patient Demographic Data

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>68</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td>Male</td>
</tr>
<tr>
<td><strong>General Health Status</strong></td>
<td>Obese, Wheelchair-Dependent, Type II Diabetes</td>
</tr>
<tr>
<td><strong>Wound Location</strong></td>
<td>Left Plantar Heel- formed at pressure point (foot rest of wheelchair)</td>
</tr>
<tr>
<td><strong>Wound Duration Prior to Treatment</strong></td>
<td>16 Weeks</td>
</tr>
<tr>
<td><strong>Prior Therapies</strong></td>
<td>Debridement, Hydrophilic Wound Dressing, Pressure-Relieving Padding</td>
</tr>
</tbody>
</table>

Excellagen® Case Study: Pressure Ulcer

“Noticed healing accelerated after first week- I was pleasantly surprised. I’m very pleased”

Curtis Long, DPM, Walla Walla, WA

5/21/2012: Wound Area 3.5 cm². Sharp Debridement Followed by Excellagen Application

7/16/2012: Complete Wound Closure at 8 weeks After Single Application of Excellagen
Excellagen® Case Study: Wound Dehiscence

“Extremely rapid healing of an extensive lower leg wound...... the patient’s high quality of life, including full, independent ambulation and driving ability, was restored.”

Steven Smith, MD, Wellesley, MA

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**Post-Treatment:** 8.3 cm²  
Wound Extends to Fascia

**Week 4:**  
Wound Fully Granulated

**Week 9:** 0.6 cm²  
Fully Epithelialized

---

**Patient Demographic Data**

<table>
<thead>
<tr>
<th>Age</th>
<th>94</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Female</td>
</tr>
<tr>
<td>General Health Status</td>
<td>Diabetes, Hypertension, MRSA</td>
</tr>
<tr>
<td>Initial Wound Status</td>
<td>Dehiscence with significant tissue necrosis following postoperative MRSA infection of Mohs surgical site</td>
</tr>
<tr>
<td>Surgical Site</td>
<td>Right lateral lower leg</td>
</tr>
<tr>
<td>Excellagen Treatment</td>
<td>Weekly for 4 weeks followed by twice daily application of Bacitracin ointment</td>
</tr>
</tbody>
</table>
Excellagen® Case Study: Mohs Surgery

“This result is beyond stunning. A wound like this usually takes 3-4 months to heal. Amazingly fast.”

Steven Smith, MD, Wellesley, MA

<table>
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<tbody>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>Mohs Surgical Site</td>
</tr>
<tr>
<td>Prior Treatment</td>
</tr>
<tr>
<td>Excellagen Treatment</td>
</tr>
</tbody>
</table>

Week 2: 15.1 cm²
Exposed Periosteum

Week 3: 11.1 cm²
Fully granulated

Week 5: 5.9 cm²

Week 7: 1.0 cm²
The CMS Reimbursement Perspective
Analysis: The Great Divide

Q Code

Skin substitutes & tissue sheets format:
EpiFix, GraFix, Apligraf, Dermagraft, GraftJacket, Oasis, PriMatrix, etc.

Gel format:
Excellagen, Integra Flowable, GraftJacket Express

A Code

Wound care dressings:
Aquacel
Cellerate Rx
Fibracol
Medihoney
Polymem
Tegaderm
Commercial Business:
Vertical Marketing & Sales Opportunities

- Government including U.S. Veterans Affairs & Bureau of Indian Affairs
- Hospital, Wound Care Centers (DRG/CMS) & Long-Term Care Facilities (CMS)
- Podiatry Focus (CMS)
- Derm Focus (Private Pay)
- Ortho Focus (DRG)
- International Markets
The Commoditization of Amniotic Tissue Products

American Association of Tissue Banks (AATB)

Derma Sciences

MiMedx

Medline (Liventa)

Alliqua Amniox NuTech & Others

Flowable Micronization Issues under Section 361 of Public Health Service Act

FDA Regulatory Issues Re Claim Structure
Excellagen® Summary & Commercialization Status

- Competitively positioned and priced, plug-n-play product for existing sales and marketing organization
- Excellagen is the best-in-class acellular biological modulator designed to accelerate the growth of granulation tissue for wound healing with new CMS Q Code designation
- FDA 510(k) clearance for treatment of a broad array of dermal wounds and new 510(k) on form and function pending
- Initial medical focus: Diabetic Foot Ulcers
- Aseptically manufactured, pharmaceutically-formulated collagen, flowable syringe-based format, ease and simplicity of use
- Matrix multi-center clinical study shows significant tissue growth and positive wound closure versus control at 12 weeks based on average of 1.6 treatments
- Post-marketing in vitro study supports platelet activation triggering the release of endogenous PDGF, an important wound healing mediator
- Matrix Excellagen clinical study data published in peer-reviewed journal
- Selected as 2013 Top 10 Innovation in Podiatry by Podiatry Today magazine
- Initial patent application filed last year (2012) advancing through review process
- Outsourced supply chain fully operational including U.S. cold chain distributor: Smith Medical Partners
- International CE mark registration in progress, expected approval 1Q/2014
- Recently announced an EU-Funded Phase 1 stem cell-based study
Summary: Investor Highlights

- Advanced regenerative therapeutics company focused on developing new and innovative products based on Cardium’s gene therapy and flowable dermal matrix product portfolios and technology platforms to address unmet medical needs in the fields of cardiovascular disease, wound healing and tissue engineering.

- Leader in the field of cardiovascular gene therapy with one of the largest clinical and regulatory regenerative gene therapy dossiers in the world, covering treatment of over 750 patients in the United States, Canada, South America, Western Europe and the Russian Federation at over 100 medical centers, and with a database of over 2,000 years of patient safety follow-up.

- Generx® [Ad5FGF-4] cost effective Phase 3 clinical registration study underway in Russian Federation and U.S.-based Phase 3 clinical study cleared by FDA for myocardial ischemia due to Coronary Microvascular Insufficiency in patients that are unresponsive to optimal medical therapy and not suitable candidates for cardiac by-pass surgery and percutaneous coronary intervention. Generx has favorable manufacturing gross margin, six year validated stability and fully validated and scalable U.S.-based cGMP manufacturing process.

- Excellagen® is the only FDA-cleared, ready-use, syringe-based, flowable dermal matrix for wound care management that has demonstrated capabilities as a delivery platform for gene and stem cell-based therapeutics and tissue engineering. Highly credenialized, complete U.S. distribution and logistics network in place and ready for strategic partnering. International CE mark registration process ongoing and expected to be completed in 2014.
- Regulatory environment improving with “Breakthrough Therapy” designations now being implemented by the FDA which offers potential to shorten and simplify clinical development of novel therapies in the areas unmet medical need and potentially reducing development costs and time to market

- Equity investment and clinical development of gene-based therapeutics has been accelerating in the past 18 months. Over $700 million has been invested by venture and institutional investors into gene therapy focused companies, including $250 million directed to pre-IND stage product platforms

- Cardium’s non-core investments include LifeAgain®, advanced medical data analytics, which has an initial strategic partnership with Symetra Life insurance Company, and an equity stake in Healthy Brand Collective (HBC), a nutraceutical and organic food company, which acquired Cardium’s To Go Brands® business. Cardium plans independent financings to support the the growth and development of LifeAgain and cash monetize Cardium’s To Go Brands investment through HBC’s going public plans

- Cardium represents a substantially undervalued equity opportunity when compared to the valuations of regenerative medicine and late-stage gene therapy peers and recent capital fund raising metrics, and the Company’s business model and “conserved” operating cost structure