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.
Investment Highlights

- Cardium is an advanced regenerative therapeutics company which is focused on the development of new and innovative products based on its core DNA, manufacturing process and technology platforms for cardiovascular disease, wound healing and tissue engineering.

- **Generx® Global Angiogenic Gene Therapy Program:** cost-efficient Phase 3 registration clinical study is underway.
  
  **Study Design:** 100 patients with SPECT imaging efficacy endpoint.
  
  **Initial medical condition:** Cardiac Microvascular Insufficiency (CMI) for patients with myocardial ischemia due to coronary artery disease.
  
  **Initial niche target market:** substantial with no directly competitive products for the addressable market opportunity: patients unresponsive to optimal medical therapy and not suitable candidates for cardiac bypass surgery and percutaneous coronary intervention.
  
  **Favorable manufacturing (≥ 85% gross margin) and six year validated stability data allows for cost effective campaign manufacturing.**
  
  **Fully validated and scalable U.S.-based cGMP manufacturing process for commercialization.**
  
  **Planning to release interim data on study mid-2014.**
  
  **Recently reported encouraging preliminary findings from study: Generx continues to appear safe, well tolerated and efficacy signal consistent with Phase 2 study data and response is similar in order of magnitude to those reported in medical literature for patients undergoing cardiac bypass surgery and percutaneous coronary interventions.**

- **Excellagen® Advanced Wound Care Management Platform:** FDA 510(k) clearance for U.S. marketing and sales.
  
  **Consistent with business strategy:** support initial market introduction, seed the market, then monetize. Currently in discussions for strategic partnerships and distribution deals in U.S. and international markets.
  
  **New and innovative, cost effective wound care solution for a transformative market that has marginalized traditional high priced treatment modalities through new CMS reimbursement constraints.**
  
  **Recent favorable CMS determination has assigned Excellagen a new and unique Medicare reimbursement Q code (Q4149) as a “skin substitute.”**
  
  **Enabling delivery platform for stem cells, biologics, drugs, and peptides.**
  
  **Recently reported studies confirm medical utility of Excellagen to deliver stem cells for diabetic wound healing and tissue engineering applications.**
  
  **International CE mark registration application pending.**

- **LifeAgain® BlueMetric Select Program:** advanced medical data analytics platform focused on developing new and innovative life insurance programs for under recognized and uninsurable medical niche markets.
  
  **First program for men with active localized prostate cancer with Symetra Life Insurance is now available.**
  
  **Launch acceleration planned for 1Q/2014.**
  
  **Non-core program seeking external investment to support future commercial growth and development.**

- **Health Sciences Investment:** own private equity investment in Healthy Brands Collective.
  
  **Acquired through the recent sale of Cardium’s To Go Brands® business through an asset sale in exchange for preferred stock equity position.**
  
  **Healthy Brands has been making significant rollup acquisitions in the health food and nutraceutical market segments and, as previously reported, plans to move forward as a public company following further external acquisitions.**
  
  **Products are sold through the company’s web-based store and food, drug and mass channels at over 15,000 retailers nationwide.**
  
  **Cardium may seek to cash monetize this investment during 2014.**
### Cardium Focus:
**Advanced Regenerative Therapeutics**

<table>
<thead>
<tr>
<th>Lead Product</th>
<th>Technology Platform</th>
<th>Formulation</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generx®</td>
<td>Gene Therapy</td>
<td>Ad5FGF-4 DNA Construct</td>
<td>Phase 3 Registration Study</td>
</tr>
<tr>
<td>Excellagen®</td>
<td>Cardiovascular Growth Factor Therapeutics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Product Candidate</td>
<td>Ad5FGF-4 DNA Construct</td>
<td>Phase 3 Registration Study</td>
</tr>
<tr>
<td>Excellagen®</td>
<td>Advanced Tissue Regeneration for Wounds &amp; Biologics Delivery Platform</td>
<td>Aseptic Pharmaceutically-Formulated Fibrillar Collagen</td>
<td>Initial Product FDA-Cleared</td>
</tr>
</tbody>
</table>
Cardium: Major Key Goals and Objectives 2014

- The advancement of our international Phase 3 registration clinical study for Generx® which is currently underway in the Russian Federation, and the release of findings from interim data analysis in the mid-2014. With clinical success, initiate marketing and sale of Generx in Russia and other CIS countries with local distribution partner, and initiate meetings with the U.S. FDA to seek harmonization between the International Clinical Study with Cardium’s already FDA-cleared Generx Phase 3 clinical study in an effort to advance the U.S.-based clinical studies supported by a strategic partner.

- Strategically partner and monetize our FDA-cleared pharmaceutically formulated collagen commercial wound care product Excellagen®, for select U.S.-based vertical market channels and build on Cardium’s capabilities and resources to leverage Excellagen as an advanced regenerative medicine delivery platform by identifying new and innovative product extensions for tissue regeneration based on stem cells, biologics, peptides and small molecule drugs for future development by Cardium.

- Advance the commercialization of our non-core LifeAgain Insurance Solutions advanced medical data analytics business investment that is focused on the development, marketing and sale of “survivable risk” term life insurance for cancer survivors or others with medical conditions which are currently considered uninsurable based on traditional underwriting standards. The Company plans to potentially support the growth and development of this business and technology platform through the sale of a minority stake in our LifeAgain business to a strategic partner or financial investors.

- Cash monetize Cardium’s equity stake in non-core Healthy Brands Collective (Cell-nique Corporation). We acquired this investment through the recent sale of our To Go Brands® health sciences business through an asset exchange for a preferred equity position in Healthy Brands. Healthy Brands has been making significant acquisitions and has previously reported plans to move forward as a public company as its current businesses advance and grow through further acquisition.
Generx Highlights

- Generx (alferminogene tadenovec) [Ad5FGF-4], Cardium’s lead Phase 3 clinical study product candidate, is a transformative, disease-modifying angiogenic growth factor gene therapeutic that is designed to stimulate and promote the growth of cardiac microvascular circulation to enhance myocardial perfusion (blood flow) for patients with Advanced Angina who are unresponsive to optimal medical therapy and are considered not suitable for coronary artery bypass surgery and angioplasty and stenting.

- Cardium is a leader in the field of cardiovascular gene therapy and its management team has assembled one of the largest clinical and regulatory dossiers for a cardiac gene therapy product candidate in the world, covering the 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 is administered by an interventional cardiologist in an out-patient setting using a non-surgical, standard catheter-based angiography procedure.

- Generx drives the cellular expression of FGF-4 protein, which in turn stimulates the release and action of other angiogenic growth factors, including PDGF, HGF and VEGF. Company-sponsored research demonstrates that Generx has the capacity to promote and enhance cardiac microvascular circulation through the enlargement of pre-existing collateral arterioles (arteriogenesis) and the formation of new capillary vessels (angiogenesis).

- Based on data from four completed clinical studies (AGENT 1-4), Generx appears to be safe and well tolerated and capable of improving myocardial perfusion, as measured by Single-Photon Emission Computed Tomography (SPECT) imaging, in patients with Reversible Perfusion Defect Size (RPDS) greater than 9%, and improves exercise tolerance time (ETT) based on analysis of pre-specified patient sub-groups.

- The ongoing International Clinical Study uses a new and simplified closed system Generx clinical dose preparation process (PhaSeal®), as well as Cardium’s new catheter-based delivery technology designed to increase efficiency of Generx transfection.

- In December 2013, we reported encouraging preliminary findings from the ongoing International Clinical Study which showed that Generx continued to be safe and well tolerated and that in patients with Advanced Angina, the apparent treatment effects were similar in magnitude to the Generx Phase 2 SPECT clinical study conducted in the U.S., and to SPECT studies reported in the medical literature for patients undergoing surgical revascularization procedures (cardiac by-pass surgery, angioplasty and/or stenting), as measured by improvements of reversible perfusion defects of comparable size.

- Based on these preliminary findings, Cardium announced plans to accelerate the International Clinical Study, and expects to be in a position to provide findings from an interim data analysis in mid-2014.
Generx Highlights

- The Cleveland Clinic Foundation reports that approximately 12% of all angina patients are considered to have Advanced Angina, which represent approximately 900,000 patients in the U.S.

- Cardium believes that Generx offers the potential to be a key new product offering for patients with Advanced Angina, which represents a projected $3.2 billion addressable market opportunity. This market is substantially larger when considered on a global basis beyond the initial U.S. and Russian registrations.

- Cardium has established a six year shelf life for Generx, and anticipates that Generx will be campaign-manufactured in large quantity, without further capital investment and validation, and held for marketing, sale and distribution during the six year stability period.

- This flexibility is expected to allow Cardium to manufacture Generx at a highly economical direct cost, which could potentially yield economic gross margins (85%), which would be approximately equivalent to a favorable classic small molecule drug model.

- Based on Cardium’s current financial model, we expect to be in a position to contract manufacture Generx for less than $200 per treatment dose. This would represent a significant commercial advantage in the market, and could be an order of magnitude lower than the expected costs associated with the manufacture of complex donor-based autologous cell therapies, which are currently under development by other biotechnology companies for cardiovascular applications.

- Cardium has a new and unique, fully-validated performance-based quality release assay to measure and evaluate the pro-angiogenic potency of each newly manufactured batch of Generx.
New biological tools for the interventional cardiologist

Leverages the healing power of cardiac plasticity

Innovative intracoronary delivery approach with standard diagnostic catheter

One-time treatment

DNA transgene delivery and CAR receptor-based preferential cardiac uptake

Ischemic injury (coronary heart disease and heart attack) is a required precursor for effective growth factor therapy

Designed to stimulate microvascular angiogenesis and arteriogenesis

Driven by upstream regulatory genes that stimulate cascade of other important growth factors

Generx is the first DNA-based biologic to advance to U.S. FDA Phase 3 (with fast track status)

Generx (alferminogene tadenovec) [Ad5FGF-4]
Generx: Seeking to Expand the Cycle of Care

**First-Line Therapy**
(Preventative)
- Coronary Artery Disease Risk Factors

**Early-Stage Disease**
(Management)
- Stable Angina Pectoris

**Late-Stage Disease**
(Intervention)
- Large Vessel Coronary Artery Stenosis > 70%

**No Treatment Options**
(Disease-Modifying)
- Cardiac Microvascular Insufficiency

**Total Cholesterol**
> 200 mg/dl

**Exercise ECG Test**
- SPECT Imaging

**Angiographic Evaluation**
- SPECT Imaging RPDS ≥ 9%
- Low ETT/METs Scores (≤ 7)
- ↓ Coronary Collateral Reserve
- Fractional Flow Reserve (≥ 0.75)

**Lipid-Lowering Therapy**, ↓ Blood Pressure, △ Life Style

**Medical Therapy:**
- Nitroglycerin
- Beta Blockers
- Ace Inhibitors
- Others

**Mechanical Revascularization:**
- Cardiac Bypass Surgery & Percutaneous Coronary Intervention

**Angiogenic Gene Therapy**
- Generx® [Ad5FGF-4]

*Unresponsive to optimal medical therapy and not suitable candidates for bypass surgery and PCI.*
Excellagen Highlights

- FDA-cleared, pharmaceutically-formulated acellular biological modulator that activates wound healing by promoting the formation and growth of granulation tissue.
- Cost-effective, easy to use professional product indicated for chronic non-healing diabetic foot, pressure and venous ulcers, as well as other dermal wounds (including traumatic and surgical wounds).
- Specialized manufacturing process preserves 3-dimensional fibrillar collagen structure and function, providing a structural scaffold for chemotaxis, cellular adhesion, migration and proliferation to promote wound granulation.
- Rapid and robust wound granulation demonstrated in randomized, controlled, U.S.-based, multi-center clinical study in chronic diabetic foot ulcers (the Matrix study). A single application of Excellagen accelerated wound granulation at one week by 204% (p=0.018) and at 2 weeks by 104% (p=0.032), compared to standard of care.
- Rapid and robust wound granulation has also been demonstrated in published, post-marketing chronic pressure ulcer case studies.
- In December 2013, Excellagen was classified for reimbursement by CMS as a unique “skin substitute” (similar to living skin equivalents Dermagraft® and Apligraf® and human dermal and amnion placental tissue-based products including Graftjacket® and EpiFix®). The product-specific Excellagen reimbursement code, Q4149, took effect January 1, 2014.
- The U.S. advanced wound care market exceeds $5 billion annually with seven million Americans suffering from chronic wounds. The skin substitutes market segment, which now includes Excellagen, represents a $500 million annual market opportunity. This market is expected to grow due to the aging population and the rise in diabetes, obesity and the increased number of seniors living in long-term care facilities.
- In addition to its stand-alone use for dermal wounds, Excellagen has been engineered to serve as a biologics delivery platform, enabling multiple device, tissue scaffolding and therapeutic product extensions for tissue regeneration based on stem cells, biologics, peptides and small molecule drugs.
- Researchers at Boston Children’s Hospital and Orbsen Therapeutics have completed preclinical proof-of-concept studies that support the potential medical utility of Excellagen for the delivery of stem cells to promote the growth of an engineered tissue graft using autologous mesenchymal fetal stem cells, and to promote diabetic wound healing using proprietary allogeneic stem cells, respectively.
Excellagen: Initial Medical Focus

The only syringe-based, flowable, ready to use pharmaceutically-formulated fibrillar collagen, professional use product for wound care management.
Excellagen® Medical Opportunity

- Chronic Diabetic Foot Ulcers
- Pressure Ulcers
- Other Wounds: Including Surgical & Burns
- Venous Ulcers
Excellagen: Enabling Delivery Platform

- Peptides
- Small Molecule Drugs
- Conditioned Cell Media
- Anti-microbials
- DNA-Based Biologics
- Pluripotent Stem Cells
Interventional cardiology-focused, disease modifying product candidate that is designed to stimulate and promote the growth of cardiac microvascular circulation that is being developed for a medical condition termed Cardiac Microvascular Insufficiency (CMI) in patients with myocardial ischemia and symptomatic chronic stable angina pectoris due to coronary artery disease. Patients with CMI have had an insufficient angiogenic response to their current disease state and may benefit from a therapy to biologically enhance cardiac perfusion through the facilitation of collateral vessel formulation. This condition is diagnosed by SPECT imaging, and other catheter-based diagnostic techniques. Generx is a one-time treatment administered by a standard balloon catheter using well established diagnostic angiography.
Cardiovascular Angiogenesis
Generx Formulation:
Angiogenic Gene Therapy

Clinical Development of DNA-Based Angiogenic Therapy

Manufacturing Know-How & Expertise

Adenovirus Vector (Ad5)
Angiogenic Growth Factor (FGF-4)

Generx [Ad5FGF-4]
Generx®
(alferminogene tadenovec)

Adenovector
- Demonstrated Cardiovascular Safety Database with FDA
- Established FDA Manufacturing Standards
- High Cardiac Transfection Levels due to Binding to CAR and Enhanced by Ischemia
- Transient Expression - Does Not Integrate into Host Genome
- Manufacturing in High Titer
- Easily Manipulated
- Relatively Low Cytotoxicity
- Mutagenesis Improbable
- Very Favorable Manufacturing Cost

<table>
<thead>
<tr>
<th>Research Studies: Intracoronary Administration</th>
<th>Coronary Extraction Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Clinical Porcine Study Giordano et al. <em>Nat Med</em> 1996;2:(5):534</td>
<td>98% (mean)</td>
</tr>
<tr>
<td>Phase 1/2 Clinical Study – AGENT Trial Grines et al. <em>Circulation</em> 2002;105:1291</td>
<td>87% (median)</td>
</tr>
<tr>
<td>Generx® FGF-4 Gene</td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>✓ Regulates angiogenesis / ateriogenesis</td>
<td></td>
</tr>
<tr>
<td>✓ Signal peptide – secreted FGF protein</td>
<td></td>
</tr>
<tr>
<td>✓ Binds to extracellular matrix proteins</td>
<td></td>
</tr>
<tr>
<td>✓ Abundant FGF-4 receptors found in cardiac tissue</td>
<td></td>
</tr>
<tr>
<td>✓ Upstream growth factor that can recruit and stimulate the release of downstream angiogenic factors (VEGF, HGF, NO)</td>
<td></td>
</tr>
<tr>
<td>✓ Appears to require ischemia induced co-factors to augment the angiogenesis process</td>
<td></td>
</tr>
</tbody>
</table>
Generx [Ad5FGF-4]
Intracoronary Administration of DNA-Based Cardiovascular Growth Factor Therapeutic

- One-time treatment via a non-surgical delivery by intracoronary administration by interventional cardiologist during an angiogram procedure
- Utilizes standard balloon catheter which can be easily integrated into diagnostic angiogram procedures or with other percutaneous coronary interventions
- New induced transient ischemia / reperfusion techniques are designed to enhance DNA uptake and expression in the heart
- 40% administered to right coronary circulation and 60% to left coronary circulation
Generx® [Ad5FGF-4]

Catheter-Based Intracoronary Delivery

Enhanced Angiogenic Microvascular Circulation
Generx has been evaluated in studies of over 650 patients (including 450 Generx-treated patients) in four multi-center, double-blind, placebo-controlled clinical studies at 100 medical centers. Generx is the most clinically advanced DNA-based cardiovascular angiogenic growth factor therapeutic in the world.

One-Time Treatment

Generx [Ad5FGF-4] (alferinogene tadenovec)

DNA-Based Delivery

Angiogenic Response

AGENT-2 - Representative Generx-treated patient: 77% improvement in cardiac perfusion at 8 weeks equivalent to bypass surgery and PCI (angioplasty/stenting) at one year.
New Collateral Vessel Formation

Coronary Artery Disease
Natural Disease-Induced Collateral Network Formation
Guidelines for Choosing Generx Angiogenic Therapy in Patients with Symptomatic Coronary Artery Disease

- Patients experiencing persistent angina despite optimal medical therapies including those considered not suitable candidates for coronary bypass surgery or percutaneous coronary intervention (PCI).

- Patients with a reversible perfusion defect size (RPDS) of 9% or greater based on SPECT imaging.

- Patients who experience significant angina or equivalent symptoms with signs of myocardial ischemia whose angiographic evaluation shows less than 70% stenosis in any major artery (small vessel disease).

- Patients with coronary artery disease who cannot exercise to 7 metabolic equivalents (METs) during an exercise treadmill test (ETT).

- Patients demonstrating insufficient coronary collateral reserve (CCR) as measured by the distal coronary occlusion pressure or flow method determination of CCR.

- Patients who experience significant angina or equivalent symptoms with signs of myocardial ischemia but who have a fractional flow reserve (FFR) ratio of 0.75 or greater based on angiographic evaluation (possible coronary micro-vascular insufficiency).
## Generx® [Ad5FGF-4] Clinical Studies

<table>
<thead>
<tr>
<th>Year</th>
<th>Study Name</th>
<th>Region / County</th>
<th>Clinical Study Phase</th>
<th>Patient Status</th>
<th>Clinical Endpoint</th>
<th>Number Patients Recruited</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>AGENT-1</td>
<td>U.S.</td>
<td>Phase 1/2 Dose finding &amp; safety</td>
<td>Class 2 – 3 Angina</td>
<td>Exercise Treadmill Time</td>
<td>79</td>
</tr>
<tr>
<td>2001</td>
<td>AGENT-2</td>
<td>North America</td>
<td>Phase 2a Mechanism of Action Study</td>
<td>&gt;9% Reversible Reperfusion Defect</td>
<td>SPECT Imaging</td>
<td>52</td>
</tr>
<tr>
<td>2004</td>
<td>AGENT-3</td>
<td>North America</td>
<td>Phase 2b/3</td>
<td>Class 2 – 4 Angina</td>
<td>Exercise Treadmill Time</td>
<td>300</td>
</tr>
<tr>
<td>2004</td>
<td>AGENT-4</td>
<td>Western Europe &amp; South America</td>
<td>Phase 2b/3</td>
<td>Class 2 – 4 Angina</td>
<td>Exercise Treadmill Time</td>
<td>252</td>
</tr>
<tr>
<td>2008</td>
<td>AWARE</td>
<td>U.S.</td>
<td>Phase 3</td>
<td>Class 3 – 4 Angina</td>
<td>Exercise Treadmill Time (Time to ST Segment Depression)</td>
<td>U.S. Beta Tested</td>
</tr>
<tr>
<td>2013</td>
<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>
</tbody>
</table>

**TOTAL** 783
Generx® [Ad5FGF-4]  
Product Focus for Russian Federation

Generx is an angiogenic gene therapy that is being developed to promote the growth of microvascular circulation in the heart. It is administered by a cardiologist through a cardiac catheter during an outpatient angiographic procedure. The product is a new treatment option for a condition termed Cardiac Microvascular Insufficiency (CMI) in patients with myocardial ischemia and symptomatic angina pectoris due to coronary artery disease, who are unresponsive to optimal medical therapy and are not suitable candidates for mechanical revascularization (including coronary artery bypass surgery and angioplasty and stents). A long-term study (n = 845) has shown that patients with a higher collateral blood flow index may have an improved mortality benefit when compared to patients with a relatively lower collateral blood flow index.

### Selected Health Statistics Benchmarks

<table>
<thead>
<tr>
<th>Demographic Metrics</th>
<th>United States</th>
<th>Russian Federation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Life Expectancy (Males)</td>
<td>76</td>
<td>64</td>
</tr>
<tr>
<td>Cardiovascular Death Rates per 100,000</td>
<td>80</td>
<td>297</td>
</tr>
<tr>
<td>Initial Generx Target Population</td>
<td>900,000</td>
<td>3,000,000*</td>
</tr>
</tbody>
</table>

*Includes Russian Federation and other CIS countries
## CardioNovo®: Russian Federation Phase 3 Registration Study

<table>
<thead>
<tr>
<th>Elements</th>
<th>International Markets (Initially Russian Federation) (ASPIRE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>CardioNovo [Ad5FGF-4] (alferminogene tadenovec)</td>
</tr>
<tr>
<td>Clinical Status</td>
<td>RHA Cleared Phase 3 / Registration Study</td>
</tr>
<tr>
<td>Clinical Study Population</td>
<td>100 Men &amp; Women Multi-Center, Randomized, Controlled Parallel-Group</td>
</tr>
<tr>
<td>Medical Indication</td>
<td>Treatment Option for Patients Considering Angioplasty / Stents &amp; Bypass Surgery</td>
</tr>
<tr>
<td>Clinical Endpoint</td>
<td>Improvement in Reversible Perfusion Deficit Based on SPECT Imaging</td>
</tr>
<tr>
<td>Clinical Study Status</td>
<td>Initiated 2012</td>
</tr>
</tbody>
</table>
Russian Federation
Clinical Investigators Study Website
Russian Federation
Clinical Patient Recruitment Website

КардиоНово
Клиническое исследование для больных сердечно-сосудистыми заболеваниями – стенокардия

Усовершенствованное клиническое исследование!
Новый способ миниинвазивного вмешательства, требующий однократного выполнения интраоперационного вмешательства в условиях стационара!
Абсолютно бесплатно!

Приглашаем принять участие в клиническом исследовании препарата КардиоНово

КардиоНово – это новый, исследуемый препарат генной терапии, который предназначен для стимуляции гипертрофии, т. е. возобновления процесса роста новых кровеносных сосудов.

К настоящему времени, 663 пациента приняли участие в Д.И. исследований, проведенных в США, Канаде, Европе и Латинской Америке. Общие данные показывают отсутствие серьезных осложнений, хорошую переносимость и эффективность применения препарата.

Лицам, согласившимся участвовать в исследовании, а также принимавшим участие в исследовании, бесплатно выполнено полное медицинское и лабораторное обследование, а также телеметрия сердца. Участникам исследования будут оплачиваться расходы на проезд для проведения регулярных обследований. Клиническое исследование ASPARE проводится в 3 медицинские центры Москвы и Санкт-Петербурга.

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## Generx®: Current Global Clinical Study Status

<table>
<thead>
<tr>
<th>Elements</th>
<th>U.S. Market (AWARE)</th>
<th>International Markets (Initially Russian Federation) (ASPIRE)</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>RHA 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>Anti-Angina for Refractory Patients who are not Optimal Candidates for Angioplasty / Stents &amp; Bypass Surgery</td>
<td>Treatment Option for Patients Considering Angioplasty / Stents &amp; Bypass Surgery</td>
</tr>
<tr>
<td><strong>Clinical Endpoint</strong></td>
<td>Improvement in Exercise Time Based on Treadmill</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>
Therapeutic Comparison

Small Molecule Drugs
- Nitrates
- Beta Blockers
- Vasodilatation Reduce Oxygen Demand
- Symptomatic Treatments

Coronary Artery Disease
- Angina (Chest Pain)
- U.S. Medical Indication

Myocardial Ischemia
- Russian Medical Indication

Efficacy Measure

ASPIRE: Phase 3 Registration Clinical Study Regenerative Medicine Biologics
- Generx [Ad5FGF-4]
- Microvascular New Network Formation
- Disease Modifier

One-Time Treatment
- [Russian Federation Efficacy Measure]

Exercise Treadmill Stress Test (ETT)
- [U.S. AWARE Study Efficacy Endpoint]

Single Photon Emission Computed Tomography (SPECT) Imaging
- [Russian ASPIRE Study Efficacy Endpoint]
Clinical Efficacy Measures

Exercise Treadmill Stress Test

Single Photon Emission Computed Tomography Stress Test
International Clinical Study Design Based on AGENT-2: Primary Endpoint SPECT Imaging Angiogenic Mechanism of Action Study

**Generx®**
Change in Reversible Perfusion Defect Size 8 Weeks

<table>
<thead>
<tr>
<th></th>
<th>Mean Reduction in RPDS (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placebo</td>
<td>1.25 ± 0.5 (n=17/16)</td>
</tr>
<tr>
<td>10e10 vp</td>
<td>4.25 ± 1.0 (n=35)</td>
</tr>
</tbody>
</table>

- *p* = 0.14
- *p* < 0.05

*Excludes one extreme placebo outlier*
## AGENT 2 - Comparison of SPECT Results to Revascularization and Medical Therapy

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Coronary Revascularization</th>
<th>Medical Therapy</th>
<th>Generx AGENT-2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Placebo</td>
</tr>
<tr>
<td>Number of Patients</td>
<td>83</td>
<td>206</td>
<td>17</td>
</tr>
<tr>
<td>Age</td>
<td>$66 \pm 11$</td>
<td>$68 \pm 10$</td>
<td>$57 \pm 9$</td>
</tr>
<tr>
<td>Stress defect extent (%)</td>
<td>$18 \pm 11$</td>
<td>$16 \pm 10$</td>
<td>$20 \pm 8$</td>
</tr>
<tr>
<td>Reduction of reversible perfusion defect size (%)</td>
<td>$-5 \pm 12$</td>
<td>$-0.8 \pm 7$</td>
<td>$-0.8 \pm 6$</td>
</tr>
</tbody>
</table>


Comparable SPECT RPDS Improvements
Generx AGENT 3 & 4 Clinical Studies
Clinical Efficacy Using ETT
Pooled-Analysis: Protocol-Specified Gender-Based Subgroup

<table>
<thead>
<tr>
<th>Women n=76</th>
<th>12 weeks</th>
<th>6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Placebo</td>
<td>$10^9$ vp</td>
</tr>
<tr>
<td><strong>Exercise Duration</strong> (seconds percentage $\Delta$)</td>
<td>60*</td>
<td>69*</td>
</tr>
<tr>
<td>(-1%)</td>
<td>(16%)</td>
<td>(23%)</td>
</tr>
<tr>
<td><strong>Angina Onset</strong> (seconds percentage $\Delta$)</td>
<td>111</td>
<td>86</td>
</tr>
<tr>
<td>(26%)</td>
<td>(52%)</td>
<td>(46%)</td>
</tr>
<tr>
<td><strong>Time to 1mm ST Segment $\downarrow$</strong> (seconds percentage $\Delta$)</td>
<td>50</td>
<td>63*</td>
</tr>
<tr>
<td>(4%)</td>
<td>(16%)</td>
<td>(27%)</td>
</tr>
</tbody>
</table>

* $< 0.05$
Beneficial Effects of Natural Disease-Induced Collateral Vessels
10-Year Follow-up in Patients with Coronary Heart Disease

Cardiac deaths (n=42)

Cumulative Survival Rate

Time of Follow-up (months)


CARDIAC DEATHS:
10 year follow-up (n = 845)

High Flow:
5 (2%) Deaths

Low Flow:
37 (6%) Deaths

67% ↓ Cardiac Deaths
Generx® [Ad5FGF-4]
Clinical & Commercial Development Activities

AGENT 1–4
Phases 1 & 2/3 Clinical Studies
Treatment: Stable Angina for Patients with “Refractory” Coronary Artery Disease
Primary Endpoint: ETT Improvement
650 Patients at 100 Medical Centers

Cardium Innovations
- Expanded target coronary artery disease patient population
- Established new quantitative primary efficacy endpoint using SPECT imaging
- New balloon catheter-based delivery techniques to leverage Cardium’s transient ischemia discoveries to boost cell transfection
- Developed new “bio-assay” production batch release assay that measures angiogenic response to Generx
- Six-year real-time product stability (at -70°C) confirmed
- Simplified and standardized new cath lab product preparation techniques

ASPIRE Phase 3 Clinical Study
Condition: Cardiac Microvascular Insufficiency for Patients with Myocardial Ischemia Due to Coronary Artery Disease
Primary Endpoint: RPDS Improvement as Measured by SPECT
100 Patients
Generx®: Historical Perspective

Collateral Therapeutics (NASDAQ)
University of California San Diego
Discovered, Licensing and Initial Preclinical Studies

1996

Schering AG
As Strategic Partner with Collateral Therapeutics
Schering Acquires Collateral in 2002 for $160 Million
Phase 1/2 to Phase 2b/3

1997 - 2005

Cardium Therapeutics Formed to Acquire Technology from Schering / Bayer
FDA Phase 3 Clearance with Fast Track Status & Phase 3 Clearance for Registration Study in Russia

2005

Commercial International Development Activities
Russia & CIS, Brazil, United States, Switzerland

Ongoing
### Generx®: Potential Economic Metrics

#### Projected Direct Manufacturing Cost

<table>
<thead>
<tr>
<th>Direct Manufacturing Cost Elements per Dose</th>
<th>6,000 Doses</th>
<th>12,000 Doses</th>
<th>25,000 Doses</th>
<th>50,000 Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ad5FGF-4 (3.0E+9 vp/mL; at 2 mL per dose)</td>
<td>$42.00</td>
<td>$27.00</td>
<td>$18.00</td>
<td>$10.00</td>
</tr>
<tr>
<td>Filling / Lyophilization / Testing</td>
<td>$12.00</td>
<td>$8.00</td>
<td>$6.00</td>
<td>$4.00</td>
</tr>
<tr>
<td>Reconstitution and Dosing Syringe Kit</td>
<td>$3.00</td>
<td>$3.00</td>
<td>$2.00</td>
<td>$2.00</td>
</tr>
<tr>
<td>Total Direct Costs / Dose</td>
<td>$57.00</td>
<td>$38.00</td>
<td>$26.00</td>
<td>$16.00</td>
</tr>
</tbody>
</table>
## Generx®: Potential Economic Metrics

### Revenue Model

<table>
<thead>
<tr>
<th>Global Unit Volume</th>
<th>Target Revenue per Dose</th>
<th>Level I $2,000 / dose</th>
<th>Level II $3,000 / dose</th>
<th>Level III $4,000 / dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>50,000 doses</td>
<td></td>
<td>$100 Million</td>
<td>$150 Million</td>
<td>$200 Million</td>
</tr>
<tr>
<td>100,000 doses</td>
<td></td>
<td>$200 Million</td>
<td>$300 Million</td>
<td>$400 Million</td>
</tr>
<tr>
<td>150,000 doses</td>
<td></td>
<td>$300 Million</td>
<td>$450 Million</td>
<td>$600 Million</td>
</tr>
<tr>
<td>200,000 doses</td>
<td></td>
<td>$400 Million</td>
<td>$600 Million</td>
<td>$800 Million</td>
</tr>
</tbody>
</table>

### Initial U.S., Russian & CIS Opportunity

<table>
<thead>
<tr>
<th></th>
<th>US Addressable Market: 900,000 (10%)</th>
<th>Russia Addressable Market: 3,000,000 (2.5%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$180 Million 10% share</td>
<td>$150 Million 2.5% share</td>
</tr>
<tr>
<td></td>
<td>$270 Million 10% share</td>
<td>$225 Million 2.5% share</td>
</tr>
<tr>
<td></td>
<td>$360 Million 10% share</td>
<td>$300 Million 2.5% share</td>
</tr>
</tbody>
</table>
Ad5-FGF4: Manufacturing Process Overview

1. **Virus Bank**
   - Shake Flask Infection (Viral Expansion)

2. **HEK 293 Cell Bank**
   - Growth of Cells / Bioreactor Cell Culture

3. **Infection of Bioreactor**
   - Harvest of Infected Cells
   - Release of Virus from Infected Cells
   - Dilution to Required Concentration (Diluted Bulk)*
   - Thawing (Undiluted Bulk)*
   - Ad5-FGF4 Bulk Drug Substance
   - Virus Purification and Concentration
   - Sterile Filtration (Sterile Filtered, Fill Bulk)*
   - Filing into Vials*
   - Ad5-FGF4 Final Drug Product
   - Shipment to Distributors, For Marketing and Sales

4. **Medical Centers**

Generx Dose Response Bioactivity Assay
Visualization of the Angiogenic Process by Endothelial Tube Formation

Representative Images (T=13.5 days) of rhFGF-4 stimulation of vascular networks in the Essen BioScience HUVEC Tube Formation Assay. E, 1ng/mL rhFGF-4 induced HUVEC clustering as well as a small amount of tube formation. F, 2ng/mL rhFGF-4 induced clusters and tube formation. G, 4ng/mL rhFGF-4 initiated HUVEC differentiation into longer tubes and more complex networks, as observed by the increase in branching. H, 8ng/mL rhFGF-4 stimulate significant tube and network formation.
Generx®
Key Peer-Reviewed Scientific & Medical Journals

Pre-Clinical
Nature Medicine

AGENT-1
American Heart Association Journal Circulation

AGENT-2
Journal of American College of Cardiology
“We found a significant, gender-specific beneficial effect of Ad5FGF-4 on total ETT time, time to 1 mm ST-segment depression, time to angina and CCS Class in women. This is the first clinical report of a gender difference in response to cardiac angiogenic therapy.”

“The potential importance of the observed gender-specific angiogenic response on the clinical treatment of refractory angina is substantial and deserves further investigation.”

JACC
September 11, 2007
Beneficial Effects of a Disease-Induced Angiogenic Vascularization

Summary Research

“A well-functioning coronary collateral circulation saves lives in patients with chronic stable coronary artery disease.”

Excellagen®
Pharmaceutically-Formulated Collagen (2.6%)
Acellular Biological Modulator

Excellagen is an FDA-cleared syringe-based flowable 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.

It 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: Credentialization

Pending. Expected 1Q 2014.
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
Excellagen®: Advanced Wound Care Product Opportunity

- Customized pharmaceutically-formulated fibrillar Type I bovine collagen
- Acellular Biological Modulator
- Aseptically manufactured
- High molecular weight
- Biocompatible, physiologic pH
- Pre-filled, ready to use syringes
- Simple and easy: no thawing or mixing
- Flowable: no staples or sutures
- Viscosity optimized for complete, dripless wound coverage
- 1 syringe can cover wounds up to 5cm²
- Treatment at only one week intervals
- Excellagen has been shown to activate human platelets, triggering the release of Platelet-Derived Growth Factor (PDGF)
- Formulated collagen accelerates growth of granulation tissue immediately following treatment compared to standard of care control arm (n=45 / p=0.018) based on Matrix Clinical Study. Blume et al., Wound Rep. Reg. 19: 302-308 (2011).
- Refrigerated storage required: Cold Chain logistics partner: Smith Medical
- For professional use only; established standard CPT® procedure and new and unique Q codes
- Each kit contains four single-use syringes containing 0.5cc of Excellagen topical gel and four sterile flexible applicators
Excellagen®: Technology & Formulation

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

Simple | Flowable | Ready Use
One Weekly Treatment
Excellagen: Acellular Biological Modulator

Magnification: 21,000X

Magnification: 6,500X

Electron Microscopy of Excellagen 2.6% Formulated Fibrillar Collagen

Excellagen® is a syringe-based flowable topical gel that functions as an acellular biologic modulator. It is an aseptically manufactured, pharmaceutically-formulated 2.6% fibrillar Type I bovine collagen gel that is configured into a staggered quaternary array of three-dimensional triple helical, telopeptide-deleted tropocollagen molecules. These linear arrays form a flowable, biocompatible and bioactive structural matrix that appears to promote chemotaxis, cellular adhesion, migration and proliferation to stimulate granulation tissue formation. It requires controlled temperature storage (2-8°C) to maintain bioactivity. Excellagen’s flowable formulation allows for the effective delivery to wounds of varying shapes and surface contours, and potentially for deep and tunneling wounds.
Excellagen® Medical Opportunity

- Chronic Diabetic Foot Ulcers
- Pressure Ulcers
- Other Wounds: Including Surgical & Burns
- Venous Ulcers
Excellagen: Enabling Delivery Platform

- Peptides
- Small Molecule Drugs
- Conditioned Cell Media
- DNA-Based Biologics
- Pluripotent Stem Cells
- Anti-microbials
Excellagen: Initial Medical Focus

The only syringe-based, flowable, ready to use pharmaceutically-formulated fibrillar collagen, professional use product for wound care management.
Excellagen Activates Platelets
Triggering 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.”
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

© 2014 Cardium Therapeutics, Inc.
# 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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pharmaceutically-Formulated Collagen 2.6%</td>
</tr>
<tr>
<td>One Excellagen Treatment</td>
<td>(n = 31)</td>
</tr>
<tr>
<td><strong>Average Wound Size</strong></td>
<td>3.0 cm²</td>
</tr>
<tr>
<td><strong>Matrix Non-Healing Ulcers: Excellagen vs. Control</strong>¹</td>
<td></td>
</tr>
<tr>
<td>Wound Size (Area) Reduction @ Week 1</td>
<td>37%</td>
</tr>
<tr>
<td>Cumulative Wound Size (Area) Reduction @ Week 2</td>
<td>49%</td>
</tr>
<tr>
<td><strong>Excellagen vs. Healing Prediction Study</strong>²</td>
<td></td>
</tr>
<tr>
<td>Wound Size (Area) Reduction @ Week 1</td>
<td>37%</td>
</tr>
<tr>
<td>Cumulative Wound Size (Area) Reduction @ Week 2</td>
<td>49%</td>
</tr>
</tbody>
</table>

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.”
“Three patients with wounds of at least 18 months to 3 years duration, and well-documented prior therapies (including NPWT) were studied. All three patients responded favorably to a treatment regimen of weekly debridement (if needed) and weekly application of type I formulated collagen gel”... “Two of the three patients achieved complete wound closure in 4-5 weeks. The third patient, with the largest wound (78 cm³...) achieved 100% granulation and a 59% reduction in wound volume after 6 weeks”.... Study nurses reported that “…weekly use of type I formulated collagen gel required less time and was more compatible with their busy schedules than standard care of daily (or multiple times daily) dressing changes”.

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

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

Excellagen® Business and Marketing Plan

- Establish Marketing and Distribution Agreement with a U.S.-based strategic partner.
- Implement regional reimbursement strategy following recent CMS Q code determination.
- Establish US-based benchmark selling price of $212.50/syringe ($850 per kit) and leverage new Q code assignment to support reimbursement at 6 CMS regional level.
- Complete first exclusive international License Agreement for marketing and sales of Excellagen with large pharma player.
- Nurse Shark’s heel ulcer case studies completed and near submission for publication.
- Continue to seek out additional R&D partnerships to further expand Excellagen as a technology platform by combination with peptides, small molecules, antibiotics, DNA biologics and stem cells.
- New FDA 510(k) pending that reflects additional and specific structural and functional properties based on the Company's supplemental research and development activities in an effort to expand product claims/utility.
- CE Mark in process to further develop International Marketing strategy focused on Europe and Latin America through established partnerships.
- Initiate Post Marketing Studies (Excellagen vs. SOC) in 2014 to establish broader medical utility.
- Initiate clinical evaluation in Long-Term Care with potential partner.
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
In November 2013, Excellagen was assigned a new and unique Q Code designation as a skin substitute (Q4149).

Key factors supporting Excellagen’s CMS Q code designation included:

- A syringe-based prescription only product for hard to heal wounds that is applied weekly in the office or hospital outpatient setting;
- Manufactured via a highly specialized aseptic process that maintains the natural 3-D fibrillar collagen structural dermal matrix (confirmed based on electron microscopy).
- Studied clinically, in comparison to typical A code products, showing accelerated healing rates.
- A new and unique "Q" code would broaden the accessibility of Excellagen to Medicare patients.

Based on Excellagen’s new and unique Q Code designation, Cardium now plans to move forward with the reimbursement process at the CMS regional level.
## Excellagen: cGMP Accreditation

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Certification</th>
</tr>
</thead>
</table>
| Cardium/Tissue Repair Co.         | FDA Cleared 510(k) #K110318  
FDA Establishment Registration (3009204677)  
ISO 13485:2003 Certified  
State of California Food and Drug Branch Medical Device Manufacturing License |
ISO 22442-3:2007 Certified  
EDQM Certificate of Suitability  
AQIS Registered                  |
ISO 22442-3:2007 Certified                                |
| AMRI, MA                          | FDA Establishment Registration (3002951540)  
BSI Audited/Certified                                |
| AndersonBrecon, IL                | FDA Establishment Registration (1421377)                                    |
| WuXi AppTec, Philadelphia PA      | FDA Establishment Registration (2247110)  
ISO/IEC 17025:2005 Accredited |
| WuXi AppTec, Marietta, GA         | FDA Establishment Registration (1000511606)  
ISO/IEC 17025:2005 Accredited |
**Excellagen: cGMP Accreditation**

- Excellagen is a wound care device composed of formulated, 2.6% (26 mg/mL) fibrillar bovine dermal collagen (Type I) that is topically applied directly to the wound surface providing a structural scaffold for granulation tissue growth. Excellagen requires storage at standard refrigeration temperature (2-8°C).

- Excellagen is conveniently packaged in prefilled, ready to use syringes with accessory flexible applicator tips to facilitate easy and controlled topical application.


- The bovine dermal collagen (Type 1) starting raw material is sourced exclusively from an EDQM and AQIS certified facility at Devro Pty Ltd, Australia, a GBR Category I rated country. The bovine dermal collagen source material is then processed into sterile, formulated collagen bulk at Collbio’s GMP manufacturing facility in Scotland.

- Sterile, formulated collagen bulk product is aseptically filled into pre-sterilized, 1cc syringes at AMRI’s GMP facility in Boston, MA.

- All quality control product testing takes place at WuXi AppTec ISO accredited facilities in Philadelphia, PA and Marietta, GA. Final packaging of all kit components takes place at AndersonBrecon’s FDA Registered facility in Illinois.

- Final packaging of all kit components takes place at AndersonBrecon’s FDA Registered facility in Illinois.
Collbio Limited, GMP Manufacturing Facility
Glasgow Scotland
Collbio Limited, GMP Manufacturing Facility
Glasgow Scotland
Excellagen: Second Generation Product Format
Excellagen: Third Generation Product Format

First Generation

Third Generation

0.5cc/syringe
Syringe Format

0.5cc/ampule
Ampule Format
EXCELLAGEN®
Formulated Bovine Collagen Topical Gel (2.5%) for Wound Care Management.

Excellagen is a pharmaceutically formulated fibrillar Type I bovine collagen gel for wound care management. During manufacture, the collagen is purified using a specialized process that removes impurities (including endotoxins), denatured molecules and collagen fragments. Excellagen promotes chemotaxis, cellular adhesion, migration and proliferation to stimulate granulation tissue formation.

Applied immediately following debridement, the flowable, ready to use formulation is ideal for use in wounds of varying shapes and surface contours as well as tunnelled/undermined wounds where sheet-based products are not adequate.

Excellagen is contraindicated for individuals with a known sensitivity to products of bovine origin.

Excellagen is for use by healthcare professionals in the United States. All information, including the prescribing information for Excellagen, follows laws, regulatory requirements, and medical practices for...
## Excellagen: Competitive Products

<table>
<thead>
<tr>
<th>Products</th>
<th>Format (Application)</th>
<th>Required Preparation</th>
<th>Sterilization Method</th>
<th>Tissue</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellagen®</td>
<td>Syringe-Based Flowable (Weekly)</td>
<td>Ready-Use</td>
<td>Aseptic</td>
<td>Pharmaceutically-Formulated Bovine-Fibrillar Collagen</td>
<td>Cardium</td>
</tr>
<tr>
<td>Integra Flowable®</td>
<td>Syringe-Based Flowable (As Needed)</td>
<td>Particles: Hydration &amp; Mixing</td>
<td>Irradiation</td>
<td>Bovine Collagen Tendon</td>
<td>Integra</td>
</tr>
<tr>
<td>GraftJacket Xpress®</td>
<td>Syringe-Based Flowable</td>
<td>Particles: Hydration &amp; Mixing</td>
<td>Aseptic</td>
<td>Human Dermal Collagen</td>
<td>KCI</td>
</tr>
<tr>
<td>PriMatrix®</td>
<td>Sheet</td>
<td>Hydration (Soaking)</td>
<td>Irradiation</td>
<td>Fetal Bovine Collagen</td>
<td>TEI</td>
</tr>
<tr>
<td>Oasis Wound Matrix®</td>
<td>Sheet</td>
<td>Hydration After Application</td>
<td>Ethylene Oxide</td>
<td>Porcine Small Intestine Submucosa</td>
<td>HealthPoint</td>
</tr>
</tbody>
</table>
Advanced Modality Cost Comparison for Wound Therapies

Estimated costs associated with full 12 weeks of DFU treatment including physician and nursing time, facility charges, treatments costs and associated standard of care.

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellagen® Topical Gel¹</td>
<td>$850</td>
</tr>
<tr>
<td>KCI GraftJacket Xpress Gel²</td>
<td>$3,590</td>
</tr>
<tr>
<td>Negative Pressure Wound Therapy³</td>
<td>$13,900</td>
</tr>
<tr>
<td>Apligraf⁴</td>
<td>$8,100</td>
</tr>
<tr>
<td>Dermagraft⁵</td>
<td>$11,600</td>
</tr>
</tbody>
</table>

¹Excellagen® assumes 4 treatments.
²Assumes 2 treatments.
³Based on 16 weeks of DFU treatment of NPWT in accordance with RCT.
⁴Based on an average of 4 surgical application (per Policy up to 5 surgical applications are allowed).
⁵Based on an average of 6 surgical applications (per Policy up to 8 applications are allowed).