



**CARDIOL**  
THERAPEUTICS

**Committed to Conquering  
Heart Failure**

July 2018

Cardiol is focused on the research and development of nanotherapeutics for the treatment of heart failure and other inflammatory conditions.

## Market Opportunity

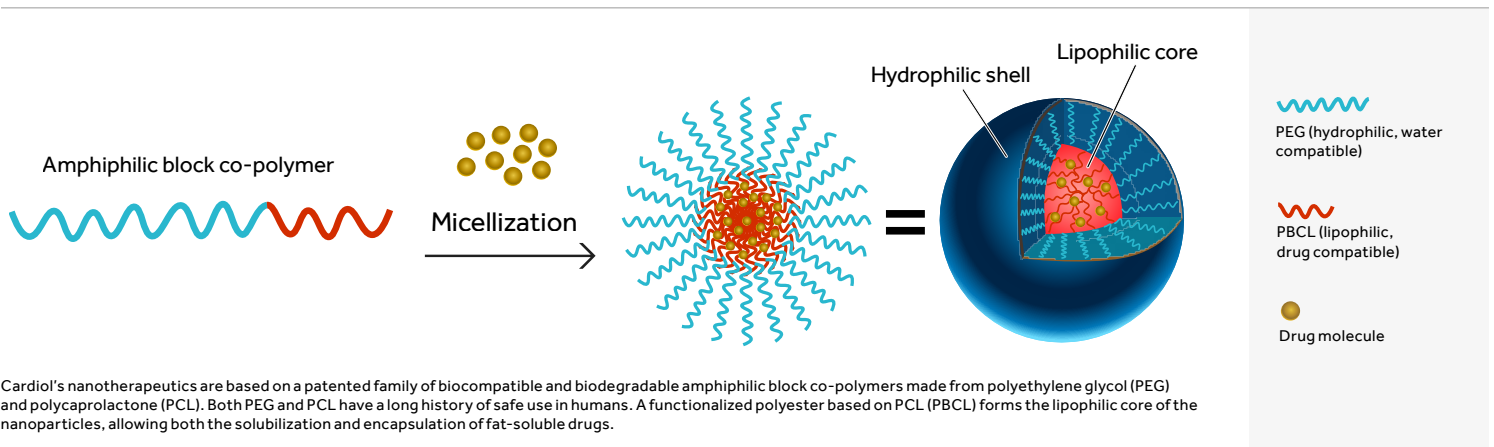
Heart failure is a chronic condition that affects more than 26 million people globally. Over five million adults in the U.S. suffer from heart failure, and it remains a leading cause of death and hospitalization with associated healthcare costs exceeding \$30 billion annually. People with heart failure experience shortness of breath, fatigue, rapid heart rate, edema, reduced exercise capacity, and a marked reduction in quality of life. Approximately half of all heart failure patients have heart failure with preserved ejection fraction (HFpEF), for which there have been no new therapies developed in over 20 years.

## Science & Technology

Most new chemical entities in clinical development and over half of all pharmaceutical products approved in the U.S. since 2000 contain drugs of low water solubility. Nanotechnology is providing solutions for these formulation challenges, generating new options for the development of pharmaceuticals with improved drug delivery characteristics. Cardiol is utilizing nanotechnology to develop innovative therapies for the treatment of heart failure. Cardiol owns the sole, exclusive, and perpetual license to patented nanotechnologies designed to enhance solubilization, improve pharmacokinetics, and facilitate drug targeting to sites of disease. Broad patent protection has been granted for these nanotechnologies in major markets including the United States, Canada, Europe, and Japan.

## Manufacturing Partnership

Cardiol has established an exclusive manufacturing arrangement with **Dalton Pharma Services (Dalton)** for supplying pharmaceutical cannabidiol at >99% purity for Cardiol's research programs. Dalton is a Health Canada approved, FDA registered, cGMP manufacturer of over 200 APIs with manufacturing capability scalable to support future clinical trials and commercialization.



## Product Candidates

### CTX01

Cardiol's proprietary nanoformulation of pharmaceutical cannabidiol being developed for the treatment of HFpEF. Cannabidiol has been shown to attenuate a number of measures of inflammation in models of diabetes, a common co-morbidity in heart failure patients, and to reduce myocardial fibrosis in a model of inflammatory heart disease.

CTX01 for subcutaneous administration is designed to avoid first-pass metabolism, optimize and maintain blood levels of the drug, and target the drug to sites of disease.



## CTX02

Cardiol is also developing a proprietary nanoformulation of methotrexate for the treatment of heart failure. Experimental data has shown that methotrexate improves cardiac function and has anti-fibrotic properties.

Low-dose methotrexate is currently being investigated in the Cardiovascular Inflammation Reduction Trial (theCIRT.org), a clinical study of 7,000 patients with diabetes or metabolic syndrome to investigate whether its anti-inflammatory effects lead to a reduction in serious cardiovascular events.

The CIRT study is expected to generate significant interest for methotrexate within the cardiology community. Cardiol plans to play a leadership role in developing methotrexate for the treatment of heart failure.

## CTX03

A proprietary nanoformulation of encapsulated Cyclosporine A (CsA) being developed by Cardiol for the treatment of heart failure. CsA is an immunosuppressant more commonly used for prevention of organ transplant rejection, including in heart transplantation. Current evidence of CsA's mechanism of action suggests that CsA has therapeutic potential in reducing heart muscle cell death and fibrosis.



Nanotherapeutic	Active Molecule	Indication	Discovery	Formulation	Pre-Clinical	Phase I	Phase II
CTX01	Cannabidiol	HFpEF	●	●	●	H2/2018	H1/2019
CTX02	Methotrexate	HFREF	●	●	H2/2018	H1/2019	H2/2019
CTX03	Cyclosporine A	HFREF	●	●	●	H2/2018	H1/2019

Cardiol is developing a new class of pure pharmaceutical cannabinoid products that have significant advantages over cannabinoid oils derived from botanical sources.

## CardiolRx Pharmaceutical Cannabidiol

In collaboration with Dalton Pharma Services, Cardiol is developing unique manufacturing expertise in the production of pure pharmaceutical cannabinoids in support of its nanotherapeutics program in heart failure.



With de-scheduling of cannabinoids from Canada's Controlled Drugs and Substances Act expected in the second half of 2018, Cardiol believes there is a significant opportunity to exploit this manufacturing expertise to develop and commercialize pharmaceutical cannabinoid products.

Current annual sales of cannabinoid-based oils in Canada are estimated to now exceed \$400 million and are expected to continue to grow exponentially. Cardiol believes that a pure pharmaceutical cannabinoid product, manufactured by a Health Canada regulated/FDA registered cGMP facility, will have key competitive advantages regarding traceability, dosimetry, consistency, and purity. Cardiol also believes this new class of cannabinoid-based products will provide the Company with a significant near-term revenue opportunity.

Product	Active Molecule	Target Market	Commercial Introduction
CardiolRx Pharmaceutical Cannabidiol	Cannabidiol	Medicinal Cannabinoids	H1/2019

## Research Collaborations

Cardiol is collaborating with world-class researchers and opinion leaders at centers of excellence to leverage multi-disciplinary expertise in drug delivery, drug formulation, nanotherapeutics, and heart failure. Our active research programs at the **University of Alberta**, **TecSalud del Tecnológico de Monterrey**, and the **Houston Methodist DeBakey Heart & Vascular Center**, provide Cardiol with the optimal platform to pursue the development of breakthrough therapies for heart failure.



## Scientific Advisory Board



**James Young**  
MD

Professor of Medicine at Cleveland Clinic Lerner College of Medicine of Case Western Reserve University and Chairman of the Cleveland Clinic Endocrinology & Metabolism Institute. A Medical Director of the Kaufman Center for Heart Failure and holds a joint appointment in the Cleveland Clinic Multi-Organ Transplant Center. Dr. Young is certified by the American Board of Internal Medicine as well as the subspecialty of Cardiovascular Disease, has participated in more than 150 clinical trials, and published more than 550 manuscripts and several textbooks.



**Afsaneh Lavasanifar**  
PharmD, PhD

Professor in the Pharmaceutical Sciences division of the Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta. Recognized expert in pharmaceuticals and drug delivery. Her research is on the design and development of polymer-based delivery systems that can increase the efficacy of different therapeutic agents. She has more than 120 peer-reviewed published/in press manuscripts and named inventor on five patent applications on novel polymer based formulations for drug and siRNA delivery.



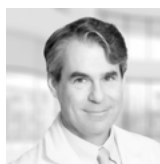
**Jonathan Howlett**  
MD, FRCPC, FACC

Clinical Professor of Medicine at University of Calgary, at the Foothills Medical Centre and Director of Heart Failure. Currently doing clinical research in heart failure, evaluation of health care delivery. Chair of the Canadian Cardiovascular Society Heart Failure Guidelines Primary Panel, co-Chair of the CCS Heart Failure Workshop Initiative, and a member of the recent Canadian Heart Health Strategy initiative. Created over 80 abstract presentations and over 70 peer-reviewed articles published or in press.



**Graham Pockley**  
PhD

Professor of Immunobiology and Director of the John van Geest Cancer Research Centre at Nottingham Trent University, UK. Previously he directed the experimental transplantation program in the Professorial Surgical Unit at the Medical College of St. Bartholomew's Hospital, London, and later was appointed Professor of Immunobiology at the University of Sheffield where he retains an Honorary Professorship in the Department of Oncology. His current research focus is the development of innovative therapeutics and diagnostics in the area of immuno-oncology, and he has over 170 peer-reviewed publications.



**Guillermo Torre-Amione**  
MD, PhD

Board certified in Cardiovascular Disease and Advanced Heart Failure/Transplant Cardiology. Chief of the Heart Failure division and Director of Cardiac Transplantation at the Houston Methodist DeBakey Heart & Vascular Center. Senior member at The Methodist Hospital Research Institute, full Professor of Medicine, Weill Cornell Medical College of Cornell Univ. President of TecSalud academic medical center and school of the Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), Mexico. He has published more than 120 manuscripts in peer-review journals.

## Financial Information

### Capital Structure:

- Shares Outstanding Fully Diluted..... 11.3M

### Ownership:

- Management..... 39%
- Strategic Partners..... 12%

### Balance Sheet:

- Cash..... \$11.5M CAD

## Management & Board Of Directors



### David Elsley

**MBA, President & CEO, Director**

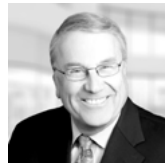
Founder and CEO of Vasogen Inc., with 25 years experience developing, financing and managing all aspects of corporate development of biotechnology and high-growth organizations.



### Anthony E. Bolton

**PhD, DSc, Director of Research & Director**

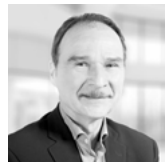
Immunologist, 20+ years experience in biotechnology, Chief Scientific Officer of Vasogen Inc.; former Professor and Department Head of Biomedical Sciences, Sheffield, UK.



### Eldon R. Smith

**OC, LL.D (Hon), MD, FCAHS, FCCS, FRCPC, Chief Medical Officer & Director**

Cardiologist, former Head of Cardiology, Chairman of Medicine, Dean of Medicine, University of Calgary; Chair Steering Committee, Canadian Heart Health Strategy; recipient of Order of Canada.



### Blagoja Ristevski

**BSc, CHE, Director of Manufacturing**

Chemical Engineer, 25+ years experience in the biopharmaceutical industry, senior exec. roles in eight Canadian biopharmaceutical Co.'s in the research/discovery of drug products; VP Product Dev., AMRIC Institute, Ontario, Canada.



### Ian Hulbert

**CPA, CA, Chief Financial Officer**

Tax specialist, 30+ years tax planning for business transition from start-up to mature co.'s; former Tax Partner with Grant Thornton; expertise in all facets of scientific research and experimental development tax credits.



### Peter Pecos

**BSc, MSc, Director**

President, CEO and Founder at Dalton Pharma Services. Broad experience in the research, development and commercialization of pharmaceuticals, products and services.



### Terry Lynch

**BBA, Director**

Chairman, Chilean Metals Inc., Founder of Pallet and Partner with Kingsmill Capital; entrepreneur with extensive experience and expertise in financing the development of new technologies.

Focused on developing nanotherapeutics that target cannabinoids and other drugs to inflamed tissue in the heart. Cardiol's proprietary nanoformulations offer the potential to prevent the chronic inflammatory processes that lead to the progression of heart failure.

## Contact

### Investor Relations

investor.relations@cardiolrx.com

Tel: 905.491.6793

To learn more about our company and our technology, please visit us at [cardiolrx.com](http://cardiolrx.com)

### Cardiol Therapeutics Inc.

2275 Upper Middle Rd. E., Suite 101

Toronto, Ontario, Canada L6H 0C3



This document contains "forward-looking information" within the meaning of applicable Canadian securities laws which may include, but is not limited to, statements with respect to: future events; the future performance or the intended business strategy of Cardiol Therapeutics Inc. ("Cardiol"); the potential for Cardiol's licensed drug encapsulation and delivery technologies to enhance the bioavailability of pharmaceuticals; management's expectations regarding estimated future pharmaceutical research and development opportunities, collaborations and prospects; the success and proposed timing of Cardiol's product development activities, including, but not limited to, the proposed timeline of Cardiol's product candidate pipeline for commercial introduction; the ability of Cardiol to develop its product candidates; Cardiol's plans to research, discover, evaluate and develop additional products; Cardiol's proposed future collaborations to advance Cardiol's lead nanoformulations into clinical development; and the potential for Cardiol's cannabinoid-based products to provide sources of future revenue. All statements, other than statements of historical fact, that address activities, events or developments that Cardiol believes, expects or anticipates will, may, could or might occur in the future are "forward-looking information". Forward-looking information is frequently identified by the use of words such as "plans", "expects", "projects", "intends", "believes", "anticipates", "forecasts", and other similar words and phrases, including variations (and negative variations) of such words and phrases, or may be identified by statements to the effect that certain actions, events or conditions "may", "could", "should", "would", or "will" be taken, occur or be achieved. Forward-looking information contained herein reflects the current expectations or beliefs of Cardiol based on information currently available to it and is subject to a variety of known and unknown risks and uncertainties and other factors that could cause the actual events or results to differ materially from any future results, performance or achievements expressed or implied by the forward-looking information. These risks and uncertainties and other factors include that the success of Cardiol's product candidates will require significant capital resources and years of clinical development efforts; the results of clinical testing and trial activities of Cardiol's products; Cardiol's ability to obtain regulatory approval and market acceptance of its products; Cardiol's ability to raise capital and the availability of future financing; Cardiol's lack of operating history; unforeseeable deficiencies in the development of Cardiol's product candidates; uncertainties relating to the availability and costs of financing needed in the future for Cardiol's research and development initiatives; Cardiol's ability to manage its research, development, growth and operating expenses; the potential failure of clinical trials to demonstrate acceptable levels of safety and efficacy of Cardiol's product candidates; Cardiol's ability to retain key management and other personnel; risks related to fluctuations in medicinal cannabinoid markets in Canada and worldwide; uncertainties regarding Cardiol's ongoing collaborative and manufacturing partnerships; uncertainties regarding results of researching and developing products for human use; Cardiol competes in a highly competitive and evolving industry; Cardiol's ability to obtain and maintain current and future intellectual property protection; and other risks and uncertainties and factors. These risks, uncertainties and other factors should be considered carefully, and investors should not place undue reliance on the forward-looking information. Any forward-looking information speaks only as of the date on which it is made and, except as may be required by applicable securities laws, Cardiol disclaims any intent or obligation to update or revise such forward-looking information, whether as a result of new information, future events or results or otherwise. Although Cardiol believes that the expectations reflected in these forward-looking statements are reasonable, they do involve certain assumptions, risks and uncertainties and are not (and should not be considered to be) guarantees of future performance. It is important that each person reviewing this document understands the significant risks attendant to the operations of Cardiol.

**Committed to Conquering Heart Failure**