

# CARDIOL THERAPEUTICS INC. MANAGEMENT'S DISCUSSION AND ANALYSIS THREE MONTHS ENDED MARCH 31, 2021

## MANAGEMENT'S DISCUSSION AND ANALYSIS

## Introduction

The following management's discussion and analysis ("MD&A") of the financial condition and results of the operations of Cardiol Therapeutics Inc. (the "Corporation" or "Cardiol") constitutes Management's review of the factors that affected the Corporation's financial and operating performance for the three months ended March 31, 2021 (the "2021 Fiscal Period"). This MD&A was written to comply with the requirements of National Instrument 51-102 — Continuous Disclosure Obligations. This discussion should be read in conjunction with the financial statements for the years ended December 31, 2020 and 2019 and the unaudited condensed interim financial statements for the three months ended March 31, 2021 ("Financial Statements"), together with the respective notes thereto. Results are reported in Canadian dollars, unless otherwise noted. The Financial Statements and the financial information contained in this MD&A are prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board and interpretations of the IFRS Interpretations Committee. In the opinion of Management, all adjustments (which consist only of normal recurring adjustments) considered necessary for a fair presentation have been included.

This MD&A is dated May 17, 2021. All dollar amounts in this MD&A are reported in Canadian dollars, unless otherwise stated. Unless otherwise noted or the context indicates otherwise the terms "we", "us", "our", "Cardiol" or the "Corporation" refer to Cardiol Therapeutics Inc.

This MD&A is presented current to the date above unless otherwise stated. The financial information presented in this MD&A is derived from the Financial Statements. This MD&A contains forward-looking statements that involve risks, uncertainties, and assumptions, including statements regarding anticipated developments in future financial periods and our plans and objectives. There can be no assurance that such information will prove to be accurate, and readers are cautioned not to place undue reliance on such forward-looking statements. See "Forward-Looking Statements" and "Risk Factors".

# **Forward-Looking Information**

This MD&A contains forward-looking information that relates to the Corporation's current expectations and views of future events. In some cases, this forward-looking information can be identified by words or phrases such as "may", "might", "will", "expect", "anticipate", "estimate", "intend", "plan", "indicate", "seek", "believe", "predict", or "likely", or the negative of these terms, or other similar expressions intended to identify forward-looking information. Statements containing forward-looking information are not historical facts. The Corporation has based this forward-looking information on its current expectations and projections about future events and financial trends that it believes might affect its financial condition, results of operations, business strategy, and financial needs. The forward-looking information includes, among other things, statements relating to:

- our anticipated cash needs, and the need for additional financing;
- our marketing and sale of a pharmaceutically produced pure cannabidiol ("CBD") oil as a *Cannabis Act* product line;
- the ability for our subcutaneous product candidates to deliver cannabinoids and other anti-inflammatory drugs to inflamed tissue in the heart;
- our development of proprietary cannabidiol formulations for near-term commercialization;
- our ability to develop new formulations;
- the successful development and commercialization of our current product candidates and the addition of future products;
- our expectation of a significant increase in the market and interest for pure pharmaceutical cannabidiol products that are tetrahydrocannabidiol ("THC") free (<10 ppm);
- the expected growth in the size of the market for cannabidiol in Canada, the United States ("U.S."), and internationally;
- our intention to build a pharmaceutical brand and cannabidiol products focused on addressing heart disease with a particular focus on heart failure;
- the expected medical benefits, viability, safety, efficacy, and dosing of cannabidiol;
- patents, including, but not limited to, our ability to have patents issued covering our drugs, drug candidates and processes, as well as successfully defending oppositions and legal challenges;

- our expectation of a near-term revenue opportunity from the sale of pure cannabidiol products;
- our competitive position and the regulatory environment in which we operate;
- our financial position; our business strategy; our growth strategies; our operations; our financial results; our dividends policy; our plans and objectives; and
- expectations of future results, performance, achievements, prospects, opportunities, or the market in which we operate.

In addition, any statements that refer to expectations, intentions, projections, or other characterizations of future events or circumstances contain forward-looking information. Forward-looking information is based on certain assumptions and analyses made by the Corporation in light of the experience and perception of historical trends, current conditions, and expected future developments and other factors we believe are appropriate, and are subject to risks and uncertainties. Although we believe that the assumptions underlying these statements are reasonable, they may prove to be incorrect, and we cannot assure that actual results will be consistent with this forward-looking information. Given these risks, uncertainties, and assumptions, prospective investors should not place undue reliance on this forward-looking information. Whether actual results, performance, or achievements will conform to the Corporation's expectations and predictions is subject to a number of known and unknown risks, uncertainties, assumptions, and other factors, including those listed under "Risk Factors", which include:

- the inherent uncertainty of product development;
- our requirement for additional financing;
- · our negative cash flow from operations;
- our history of losses;
- dependence on success of the sale of our pharmaceutically produced pure cannabidiol oil as a *Cannabis Act* product line and our early-stage product candidates which may not generate revenue;
- reliance on Management, loss of members of Management or other key personnel, or an inability to attract new Management team members;
- our ability to successfully design, commence, and complete clinical trials, including the high cost, uncertainty, and delay of clinical trials, and additional costs associated with any failed clinical trials;
- potential negative results from clinical trials and their adverse impacts on our future commercialization efforts;
- our ability to establish and maintain commercialization organizations in the U.S., Mexico, and elsewhere;
- our ability to receive and maintain regulatory exclusivities, including Orphan Drug Designations, for our drugs and drug candidates;
- delays in achievement of projected development goals;
- management of additional regulatory burdens;
- volatility in the market price for our common shares;
- failure to protect and maintain and the consequential loss of intellectual property rights;
- third-party claims relating to misappropriation by our employees of their intellectual property;
- reliance on third parties to conduct and monitor our pre-clinical studies and clinical trials;
- our product candidates being subject to controlled substance laws which may vary from jurisdiction to jurisdiction;
- changes in laws, regulations, and guidelines relating to our business, including tax and accounting requirements;
- our reliance on current early-stage research regarding the medical benefits, viability, safety, efficacy, and dosing of cannabinoids:
- claims for personal injury or death arising from the use of products and product candidates produced by us;
- uncertainty relating to market acceptance of our product candidates;
- our lack of experience in commercializing any products;
- the level of pricing and reimbursement for our products and product candidates, if approved;
- our dependence on Dalton Chemical Laboratories, Inc. operating as Dalton Pharma Services ("Dalton") and other contract manufacturers;
- unsuccessful collaborations with third parties;
- business disruptions affecting third-party suppliers and manufacturers;
- lack of control in future prices of our product candidates;
- our lack of experience in selling, marketing, or distributing our products;
- · competition in our industry;
- our inability to develop new technologies and products and the obsolescence of existing technologies and products:
- unfavorable publicity or consumer perception towards cannabidiol;

- product liability claims and product recalls;
- expansion of our business to other jurisdictions;
- fraudulent activities of employees, contractors, and consultants;
- our reliance on key inputs and their related costs;
- difficulty associated with forecasting demand for products;
- operating risk and insurance coverage;
- our inability to manage growth;
- conflicts of interest among our officers and Directors;
- managing damage to our reputation and third-party reputational risks;
- relationships with customers and third-party payors and consequential exposure to applicable anti-kickback, fraud, and abuse, and other healthcare laws;
- exposure to information systems security threats;
- no dividends for the foreseeable future:
- future sales of common shares by existing shareholders causing the market price for the common shares to fall;
- the issuance of common shares in the future causing dilution; and
- the impact of the recent novel coronavirus ("COVID-19") pandemic on operations, including clinical trials.

If any of these risks or uncertainties materialize, or if assumptions underlying the forward-looking information prove incorrect, actual results might vary materially from those anticipated in the forward-looking information.

Information contained in forward-looking information in this MD&A is provided as of the date of this MD&A, and we disclaim any obligation to update any forward-looking information, whether as a result of new information or future events or results, except to the extent required by applicable securities laws. Accordingly, potential investors should not place undue reliance on forward-looking information.

#### Overview

On December 20, 2018, the Corporation completed its initial public offering (the "IPO") on the Toronto Stock Exchange (the "TSX"). As a result, the common shares commenced trading on the TSX under the symbol "CRDL". On May 30, 2019, the Corporation also began trading on the OTCQX Best Market under the symbol "CRTPF".

The Corporation is a clinical-stage biotechnology company focused on the research and clinical development of anti-inflammatory therapies for the treatment of cardiovascular disease ("CVD"). The Corporation recently received approval from the U.S. Food and Drug Administration (the "FDA") for its Investigational New Drug ("IND") application to commence a Phase II/III, double-blind, placebo-controlled clinical trial investigating the efficacy and safety of its lead product, CardiolRx, in hospitalized COVID-19 patients with a prior history of, or risk factors for, CVD. CardiolRx is an ultra-pure, high concentration cannabidiol oral formulation that is pharmaceutically produced, manufactured under cGMP, and is THC free (<10 ppm).

COVID-19, a disease caused by the severe acute respiratory syndrome coronavirus 2 ("SARS-CoV-2"), is primarily a respiratory disease. However, an increasing number of reports indicate that COVID-19 patients are at higher risk of developing cardiovascular complications. Furthermore, patients with underlying CVD are more likely to develop severe cases of COVID-19 and have a worse prognosis. A recent study published in the *Journal of the American Medical Association Cardiology* showed that 35% of hospitalized COVID-19 patients had underlying CVD. In this study, patients with underlying CVD and myocardial injury had a significantly higher rate of mortality than patients without these complications.

The rationale for using cannabidiol to treat patients with COVID-19 who have a prior history of, or risk factors for, CVD, is based on extensive pre-clinical investigations by Cardiol and others in models of cardiovascular inflammation which have demonstrated that cannabidiol has impressive anti-inflammatory and anti-fibrotic activity, as well as anti-ischemic, and anti-arrhythmic action, and that it improves myocardial function in models of heart failure. In pre-clinical models of cardiac injury, cannabidiol was shown to be cardio-protective by reducing cardiac hypertrophy, fibrosis, and the production of certain re-modelling markers, such as cardiac B-type Natriuretic Peptide, which is typically elevated in patients with heart failure. These data were accepted for presentation at the American College of Cardiology's 69th Annual Scientific Session held virtually on March 28 – 30, 2020.

Cardiol is also planning to file an IND for a Phase II international trial of CardiolRx in acute myocarditis, a condition caused by inflammation in heart tissue, which remains the most common cause of sudden cardiac death in people less than 35 years of age and is developing a subcutaneous formulation of CardiolRx for the treatment of inflammation in the heart that is associated with the development and progression of heart failure. Heart failure is the leading cause of death and hospitalization in North America, with associated annual healthcare costs in the U.S. alone exceeding \$30 billion.

In parallel with the clinical programs in inflammatory heart disease, Cardiol is exploring the commercial development of Cortalex™, a pharmaceutically produced cannabidiol formulation to address underserved segments of the Canadian medicinal cannabidiol market.

# **Operations Highlights**

# **During the 2021 Fiscal Period**

- (i) In February 2021, the Corporation granted 1,146,666 stock options to certain consultants of the Corporation. Each option allows the holder to acquire one common share of the Corporation at an exercise price ranging from \$3.16 to \$4.80 and expires between January 31, 2023 and February 22, 2023. 696,666 of the options vest immediately, while the remainder vest 25% per quarter from the grant date. In March 2021, the Corporation granted 400,000 stock options and 100,000 vesting common shares, as described below, to an officer of the Corporation. Each option allows the holder to acquire one common share of the Corporation at an exercise price of \$4.51 and expires on March 30, 2026. The options vest 1/3 on the first anniversary of the grant date, 1/3 on the second anniversary of the grant date, and 1/3 on the third anniversary of the grant date. The 100,000 common shares vest 1/4 every 6 months from issuance.
- (ii) In February 2021, the Corporation received proceeds of \$7,968,220 on the exercise of 2,451,760 warrants with an exercise price of \$3.25, and \$503,068 on the exercise of 201,227 warrants with an exercise price of \$2.50. In addition, there were a total of 916,666 stock option exercises, resulting in proceeds of \$2,604,648.
- (iii) In March 2021, The Corporation announced that it submitted an application to list the Corporation's common shares on The Nasdaq Capital Market (the "Nasdaq").
- (iv) In March 2021, the Corporation announced that Dr. Andrew Hamer has joined the Corporation as Chief Medical Officer (CMO). Dr. Hamer will lead the research and development of the Corporation's clinical-stage products and will also guide the development of additional novel therapeutics in the Corporation's pipeline. Retiring CMO and co-founder of Cardiol, Dr. Eldon Smith, will continue to serve as Chair of the Board of Directors and as an advisor to the Corporation.
- Dr. Andrew Hamer brings 30 years of experience in the global life sciences industry, medical affairs, and cardiology practice to the Corporation. Most recently he served as Executive Director, Global Development-Cardiometabolic at California-based Amgen Inc., where he led the Global Development group for Repatha®, the LDL cholesterol lowering PCSK9 inhibitor evolocumab, which generated revenues of almost USD \$900 million in 2020. As development lead, Dr. Hamer headed the Repatha® global evidence generation team collaborating with safety, regulatory, health economics, observational research, scientific communications, publications, medical affairs, and clinical operations teams to design and execute several multi-center clinical trials in support of FDA and international regulatory filings. Prior to his five-year tenure with Amgen, Dr. Hamer served for two years as VP Medical Affairs at Capricor Therapeutics Inc., where he was responsible for the development of novel therapeutics for heart disease and for the supervision of the clinical operations of the company, including clinical trial design and execution.

Prior to joining the life sciences industry, Dr. Hamer practiced cardiology and internal medicine in New Zealand for 19 years. His distinguished career in cardiology culminated as Chief Cardiologist at Nelson Hospital, Nelson Marlborough District Health Board, Nelson, while concurrently leading cardiac services nationally in New Zealand. Dr. Hamer graduated with a medical degree (MB, ChB) from the University of Otago, New Zealand, an internationally recognized medical school which recently ranked among the top twenty universities in the world in several medical subject categories. His clinical research training took place at various centres in New Zealand and London, UK, followed by a cardiology fellowship at Deaconess Hospital, Harvard Medical School, Boston.

Dr. Hamer has co-authored many high-quality peer-reviewed scientific publications reflecting his considerable experience as a clinical trialist, having served as a principal or co-investigator for 40 multi-centre clinical trials in therapies for acute coronary syndrome, heart failure, hypertension, cholesterol disorders, atrial fibrillation, and diabetes.

## Subsequent to March 31, 2021

(i) In May 2021, the Corporation completed a short form prospectus offering of units of the Corporation for aggregate gross proceeds of \$22,003,200. Under the offering, the Corporation sold a total of 6,112,000 units at a price of \$3.60. Each unit is comprised of one Class A common share of the Corporation and one-half purchase warrant of the Corporation. Each full warrant entitles the holder thereof to acquire one common share at a price of \$4.60 for a period of 36 months from issuance. The warrants are listed for trading on the TSX under the symbol "CRDL.WT.A". Concurrent with the closing, the underwriter purchased an additional 433,400 warrants for \$8,148, pursuant to the over-allotment option.

# **Clinical Highlights**

# Phase II/III study - COVID-19

In September 2020, the FDA approved the Corporation's Investigational New Drug (IND) application to commence a Phase II/III, double-blind, placebo-controlled clinical trial investigating the efficacy and safety of CardiolRx, a pharmaceutically produced extra strength cannabidiol formulation, in 422 hospitalized COVID-19 patients with a prior history of, or risk factors for CVD. The trial will take place at major centers in the United States, where the prevalence of COVID-19 remains high.

On December 15, 2020, Cardiol announced the appointment of contract research organization (the "CRO") Worldwide Clinical Trials ("Worldwide"), as the Corporation initiates its Phase II/III trial in high-risk patients hospitalized with COVID-19 at clinical centres throughout the United States. Worldwide has been the CRO for several international COVID-19 clinical programs and has extensive experience in conducting clinical research focused on cardiovascular disease. With a global footprint, Worldwide provides drug development expertise from early phase to late-stage clinical development, post-approval, and real-world evidence studies; delivering high quality clinical programs designed to support regulatory approvals in multiple jurisdictions. Employing more than 1,900 professionals, Worldwide provides drug development support services in over 60 countries with offices in North and South America, Europe, and Asia.

Cardiol's Phase II/III trial has been designed to assess the efficacy, safety, and tolerability of CardiolRx in preventing cardiovascular complications in patients hospitalized within the previous 48 hours, with a confirmed diagnosis of COVID-19, and who have pre-existing CVD and/or significant risk factors for CVD. The composite primary efficacy endpoint will be the difference between the active and placebo groups in the percentage of patients who develop, during the first twenty-eight days following randomization and first dose of study medication, a composite endpoint consisting of one or more of several common outcomes in this patient population, including all-cause mortality, requirement for ICU admission and/or ventilatory support, as well as cardiovascular complications, including the development of heart failure, acute myocardial infarction, myocarditis, stroke, or new sustained or symptomatic arrhythmia.

Patients with COVID-19 primarily present with respiratory symptoms which can progress to bilateral pneumonia and serious pulmonary complications. It is now recognized that the impact of COVID-19 is not limited to the pulmonary system. Individuals with pre-existing CVD or who have risk factors for CVD (such as diabetes, hypertension, obesity, abnormal serum lipids, or age greater than 64) are at significantly greater risk of developing serious disease from COVID-19 and experience greater morbidity. Moreover, such COVID-19 patients are at significant risk of developing cardiovascular complications (such as acute myocardial infarction, cardiac arrhythmias, myocarditis, stroke, and heart failure) during the course of their illness, and which are frequently fatal, with an estimated 30 – 40% of patients who die from COVID-19 doing so from cardiovascular complications. A strategy to prevent or limit the number or severity of these cardiovascular complications is likely to considerably improve outcomes from this disease.

The rationale for using cannabidiol to treat patients with COVID-19 is based on extensive pre-clinical investigations by Cardiol and others in models of cardiovascular inflammation which have demonstrated that CBD has impressive anti-inflammatory and anti-fibrotic activity, as well as anti-ischemic, and anti-arrhythmic action, and that it improves myocardial function in models of heart failure. In pre-clinical models of cardiac injury, cannabidiol was shown to be cardio-protective by reducing cardiac hypertrophy, fibrosis, and the production of certain re-modelling markers, such as cardiac B-type Natriuretic Peptide (BNP), which is typically elevated in patients with heart failure. These data were accepted for presentation at the American College of Cardiology's 69th Annual Scientific Session held virtually on March 28 – 30, 2020.

The study was designed and will be overseen by an independent Steering Committee, consisting of international thought leaders in inflammatory heart disease. Members of the Steering Committee include:

# Dennis M. McNamara, MD (Chair)

Dr. Dennis McNamara is a Professor of Medicine at the University of Pittsburgh. He is also the Director of the Center for Heart Failure Research at the University of Pittsburgh Medical Center. Dr. McNamara received his undergraduate/graduate education at Yale University, New Haven, Connecticut, and Harvard Medical School, Boston, Massachusetts, respectively. He completed his internship, residency, and cardiology fellowship at Massachusetts General Hospital in Boston. McNamara's current research interests include etiology and pathogenesis of dilated cardiomyopathies; inflammatory syndromes of cardiovascular disease; myocardial recovery in recent onset non-ischemic primary cardiomyopathy; etiology and management of peripartum cardiomyopathy; and genetic modulation of outcomes in cardiovascular disease.

# Leslie T. Cooper, Jr., MD (Co-Chair)

Dr. Leslie T. Cooper, Jr., is a general cardiologist and the chair of the Mayo Clinic Enterprise Department of Cardiovascular Medicine, as well as chair of the Department of Cardiovascular Medicine at the Mayo Clinic in Florida. Dr. Cooper's clinical interests and research focus on clinical and translational studies of rare and undiagnosed cardiomyopathies, myocarditis, and inflammatory cardiac and vascular diseases, such as giant cell myocarditis, cardiac sarcoidosis, eosinophilic myocarditis, and Takayasu's arteritis. He has published over 130 original peer-reviewed papers, as well as contributing to and editing books on myocarditis. In addition to his clinical and research work, Dr. Cooper is a fellow of the American College of Cardiology, the American Heart Association, the European Society of Cardiology Heart Failure Association, the International Society for Heart and Lung Transplantation, and the Society for Vascular Medicine and Biology. He is also the founder and former president of the Myocarditis Foundation and continues to serve on its Board of Directors.

# Arvind Bhimaraj, MD

Dr. Arvind Bhimaraj is a specialist in Heart Failure and Transplantation Cardiology and is Assistant Professor of Cardiology, Institute for Academic Medicine, at Houston Methodist and at Weill Cornell Medical College, NYC. He has been Co-Director of the Heart Failure Research Laboratory at Houston Methodist since 2016. His area of focus is antifibrotic mechanisms and how to promote recovery of a damaged heart. Dr. Bhimaraj was a Heart Failure Fellow at the Cleveland Clinic from July 2010 to September 2011. Dr. Bhimaraj also specializes in Interventional Cardiology, is board certified in Cardiovascular Disease, and the author of numerous cardiovascular publications.

## Barry Trachtenberg, MD

Dr. Barry H. Trachtenberg is a cardiologist specializing in heart failure and cardiac transplantation. He is also the director of the Michael DeBakey Cardiology Associates Cardio-Oncology program, an evolving field devoted to prevention and management of cardiovascular complications of cancer therapies such as chemotherapy and radiation. His clinical experience includes heart failure and heart transplantation, mechanical support pumps, and cardio-oncology. He has contributed to multiple publications related to advanced heart failure, cardiac transplantation, regenerative therapies, and ventricular assist devices. Dr. Trachtenberg is a member of the American Heart Association, the International Society for Heart and Lung Transplantation, the Heart Failure Society of America, and the International CardiOncology Society of North America.

# Wai Hong Wilson Tang, MD

Dr. Wai Hong Wilson Tang is the Advanced Heart Failure and Transplant Cardiology specialist at the Cleveland Clinic in Cleveland, Ohio. Dr. Tang is also the Director of the Cleveland Clinic's Center for Clinical Genomics; Research Director, and staff cardiologist in the Section of Heart Failure and Cardiac Transplantation Medicine in the Sydell and Arnold Miller Family Heart & Vascular Institute at the Cleveland Clinic. He attended and graduated from Harvard Medical School in 1996, having over 23 years of diverse experience, especially in Advanced Heart Failure and Transplant Cardiology. Dr. Tang is affiliated with many hospitals including the Cleveland Clinic and cooperates with other doctors and physicians in medical groups including The Cleveland Clinic Foundation.

## Peter Liu, MD

Dr. Peter Liu is the Chief Scientific Officer and Vice President, Research, of the University of Ottawa Heart Institute, and Professor of Medicine and Physiology at the University of Toronto and University of Ottawa. He was the former Scientific Director of the Institute of Circulatory and Respiratory Health at the Canadian Institutes of Health Research, the major federal funding agency for health research in Canada. Prior to that role, he was the inaugural Director of the Heart & Stroke/Lewar Centre of Excellence in Cardiovascular Research at University of Toronto. Dr. Liu received his MD from the University of Toronto, and postgraduate training at Harvard University. His laboratory investigates the causes and treatments of heart failure, the role of inflammation, and the identification of novel biomarkers and interventions in cardiovascular disease. Dr. Liu has published over 300 peer-reviewed articles in high impact journals and received numerous awards in recognition of his research and scientific accomplishments.

# Carsten Tschöpe, MD

Dr. Carsten Tschöpe is Professor of Medicine and Cardiology. Vice Director of the Department of Internal Medicine and Cardiology, Charité Hospital, Freie Universität Berlin. He received his doctorate in medicine in 1993 and has over 140 peer - reviewed publications, including overview and book articles, and 120 international original articles. His research interests include inflammatory cardiomyopathy, diabetic cardiopathy, and ischemic cardiopathy. He also includes diastolic dysfunction, endothelial dysfunction, peptide systems, and experimental and clinical studies in cardiology and stem cells in his research studies. For his outstanding research work, Dr. Tschöpe was awarded the prestigious Arthur Weber Prize by the German Cardiac Society – Cardiovascular Research.

# Matthias Friedrich, MD

Dr. Matthias Friedrich is Full Professor with the Departments of Medicine and Diagnostic Radiology at the McGill University in Montreal and Chief, Cardiovascular Imaging at the McGill University Health Centre. He is also Professor of Medicine at Heidelberg University in Germany. Dr. Friedrich earned his MD at the Friedrich-Alexander-University Erlangen-Nürnberg, Germany. He completed his training as an internist and cardiologist at the Charité University Medicine Center, Humboldt University in Berlin. Dr. Friedrich founded one of the first large Cardiovascular Magnetic Resonance centres in Germany at the Charité Hospital in Berlin. After his move to Canada, from 2004 to 2011, he was Director of the Stephenson Cardiovascular MR Centre at the Libin Cardiovascular Institute of Alberta and Professor of Medicine within the Departments of Cardiac Sciences and Radiology at the University of Calgary, Canada. From 2011 to 2015, he directed the Philippa and Marvin Carsley Cardiovascular MR Centre at the Montreal Heart Institute and was Michel and Renata Hornstein Chair in Cardiac Imaging at the Université de Montréal.

# Guilherme Oliveira, MD, MBA

Dr. Guilherme Oliveira is a Professor of Medicine and Chairman of Cardiovascular Sciences at the University of South Florida Health Morsani College of Medicine. He is also the Executive Director of the Tampa General Hospital Heart and Vascular Institute, located in Tampa, Florida. Dr. Oliveira received his Doctor of Medicine from Universidade Federal do Rio De Janeiro, Rio De Janeiro, Brazil and completed the Internal Medicine Residency Program at the Mayo Graduate School, Rochester, Minnesota. He served a Fellowship at the Baylor College of Medicine, Houston, Texas, and earned an MBA at the Massachusetts Institute of Technology, Cambridge, Massachusetts. Dr. Oliveira's areas of expertise include advanced heart failure; left ventricular assist devices; onco-cardiology; heart transplantation; and mechanical circulatory support. For his outstanding work, Dr. Oliveira was granted admission into the Fellowship of the American College of Cardiology.

On January 21, 2021, the Corporation announced the formation of the Data Safety Monitoring Committee (the "DSMC") and the Clinical Endpoint Committee (the "CEC"). The DSMC comprises independent experts who will assess the patient safety data, and, if needed, critical efficacy endpoints of the trial. In order to do so, the DSMC may review unblinded study information (on a patient level or treatment group level) during the conduct of the trial. After each data review, the DSMC will advise the study Steering Committee with recommendations for protocol modifications, if concerns over safety have developed, or that the study should continue according to the protocol if no concerns are identified. The DSMC will also perform an interim analysis after 200 patients have completed the study, to be certain that the investigational drug is not exposing trial patients to undo risk. Study management will also perform a blinded analysis at this time to determine if the expected number of endpoints have occurred or if the sample size for the study needs to be adjusted so that enough patients will be enrolled to achieve statistical significance.

The DSMC currently consists of three members:

- Chair: Dr. Jean Lucien Rouleau Professor and Former Dean, University of Montreal and Cardiologist, Montreal Heart Institute. Dr. Rouleau has an international reputation in cardiovascular research, particularly in basic mechanisms and improving the clinical care of patients with heart failure. His publication list includes more than 475 articles and seven book chapters;
- Statistician: Dr. George Wells Professor, School of Epidemiology, Public Health and Preventive Medicine, University of Ottawa and Director, Cardiovascular Research Methods Centre, University of Ottawa Heart Institute. Dr. Wells has worked extensively with governments and non-government research organizations, as well as private pharmaceutical and biotechnology companies. He has been an Investigator in over 240 research projects with research funding exceeding \$120 million. Dr. Wells is the author or co-author of over 400 published articles; and
- Dr. John Teerlink Professor of Medicine, University of California, San Francisco and Director of Heart Failure and the Echocardiographic Laboratory at the San Francisco Veterans Affairs Center. Dr. Teerlink is actively involved in many acute and chronic heart failure clinical trials, serving on endpoint, data safety monitoring and steering committees for numerous international cardiovascular studies. He currently serves on the Acute Heart Failure Committee of the European Society of Cardiology Heart Failure Association and has served on the National Committee on Heart Failure and Transplantation of the American Heart Association. Dr. Teerlink was profiled in *The Lancet* as an internationally recognized leader in heart failure.

The CEC comprises clinical experts in cardiology and Intensive Care and has been established to ensure accurate and consistent assessment of the trial endpoints and/or serious adverse events. In order to ensure an unbiased endpoint assessment, members of the CEC are blinded to treatment assignment. The goal of the CEC is to standardize endpoints and optimize data quality.

The CEC currently consists of three members:

- Chair: Dr. Brent Mitchell Professor of Cardiac Sciences and Former Director of the Libin Cardiovascular Institute, University of Calgary. Dr. Mitchell completed a Fellowship in Clinical Cardiology at Dalhousie University in Halifax, and a Fellowship in clinical electrophysiology at Stanford University Medical Centre, California. Dr. Mitchell's clinical practice and research interests are in the area of cardiac electrophysiology, particularly in the diagnosis and management of tachyarrhythmias. Dr. Mitchell has published several sentinel papers in the diagnosis and management of serious cardiac arrhythmias;
- Dr. Maria Rosa Costanzo Professor, Rush Medical College and Cardiologist, Advocate Health, Naperville, IL.
   Dr. Costanzo is Board Certified in Advanced Heart Failure and Cardiac Transplantation. Dr. Costanzo is currently the Medical Director of the Midwest Heart Specialists Advocate Medical Group Heart Failure and Pulmonary Arterial Hypertension Programs, and Medical Director of the Edward Hospital Center for Advanced Heart Failure.
   Dr. Costanzo has published nearly 200 peer-reviewed manuscripts and is the author of numerous review papers, monographs, and book chapters; and
- **Dr. Courtney Bennett** Cardiologist and Intensive Care Physician, Director of Quality Improvement in the Cardiac Intensive Care Unit, Mayo Clinic, Rochester, MN. Dr. Bennett is a board-certified cardiologist and is board-eligible in critical care medicine. Her clinical interests include cardiac critical care and contrast echocardiography. Dr. Bennett is Mayo Quality Academy gold-certified and serves as the Director of Quality Improvement in the Cardiac Intensive Care Unit.

On April 28, 2021, Cardiol announced first patient enrolled in the Phase II/III study. The study is expected to be completed during H2, 2021. Cardiol has budgeted costs of approximately USD \$6.4 million for study execution and \$1.4 million for potential post study analysis.

Subject to study outcomes, Management's discussions with the FDA indicated that the design and scope of the Phase II/III trial may be used as a registration study in support of a New Drug Application in 2022. Cardiol may involve a commercial partner from the pharmaceutical industry, with research, development and commercialization costs potentially being shared with its commercial partner.

# Phase I study

On April 12, 2021, the Corporation announced topline results from a Phase I single and multiple ascending dose clinical trial of CardiolRx, a pharmaceutically produced oral cannabidiol formulation being developed for the treatment of acute and chronic inflammation associated with heart disease.

The Phase I trial was a randomized, placebo-controlled, double-blind study designed to evaluate the safety, tolerability, and pharmacokinetic (PK) profile of CardiolRx at various dose levels. The study randomized 52 subjects (age range 25 to 60 years) to one of two groups. In Group A, there were three sub-groups, each involving 12 subjects (nine active and three placebo), with each subject receiving a single dose of 5 mg/kg or 15 mg/kg of CardiolRx, in either the fed or fasted state. In Group B, there were two sub-groups, each involving eight subjects (six active and two placebo) with each subject receiving 5 mg/kg or 15 mg/kg twice daily for six days. Serial blood samples were taken to measure the level of cannabidiol and its two main metabolites.

Topline results demonstrated that CardiolRx was safe and generally well tolerated at all dose levels, with no serious adverse events reported in the study. Fifty-one of the 52 enrolled subjects completed all requirements of the protocol. Each subject had repeated standard measures of safety including physical examination (with vital signs), electrocardiogram (ECG) to monitor cardiac time intervals (particularly, the QTc interval, which is an important measure of the risk for abnormal heart rhythms), as well as a number of biochemical and coagulation laboratory tests. Despite the relatively high doses of CardiolRx administered during the study, there were no ECG or abnormal laboratory findings after six days of dosing; specifically, no elevation of liver enzymes or QTc changes were detected. The recorded adverse events were all mild or moderate in severity and were primarily related to the gastro-intestinal tract.

The results of the study will form an integral part of the Corporation's planned IND application with the FDA for an international Phase II clinical trial in acute myocarditis.

## Phase II study - Acute myocarditis

Cardiol is planning a Phase II clinical program in acute myocarditis utilizing its pharmaceutically produced, pure cannabidiol formulation. Cardiol's acute myocarditis program has been designed by an independent Steering Committee comprised of thought leaders in cardiology from North America and Europe. The IND filing for the Phase II trial is planned for Q3, 2021. It is anticipated that the IND application will be granted during the second half of 2021, with the study commencing soon thereafter. It is estimated that patient recruitment will take 12 to 18 months following the initiation of the clinical trial centers. Cardiol has predicted costs of this study, including the IND application, to be approximately \$600,000 for 2021; however, the total costs of the study cannot be determined at this stage as they will depend on a variety of factors.

Acute myocarditis is characterized by inflammation in the heart muscle (myocardium). It has many causes but the most common is a viral infection. In a proportion of patients, the inflammation in the heart persists and causes decreased heart function with symptoms and signs of heart failure. In some cases, this becomes progressive and leads to a chronic dilated cardiomyopathy, which is the most common reason for heart transplantation.

Since people with acute myocarditis have heart failure, its treatment is based on standard-of-care recommendations for heart failure. This includes diuretics, ACE inhibitors, angiotensin receptors blockers, beta blockers, and aldosterone inhibitors. For those with a fulminant presentation, intensive care is often required, with the use of inotropic medications (to increase the force of the heart muscle contraction) and, occasionally, heart-lung bypass or ventricular assist devices. There is otherwise no specific treatment for acute myocarditis. Although some patients have responded to therapy with immuno-suppressive therapy (azathioprine) added to steroids, the data are not conclusive enough to be the recommended therapy. Immune-modulation therapy with immune globulin has been trialed but without clear success.

A number of published studies have shown that cannabidiol has anti-inflammatory activities in a range of experimental inflammatory pathologies. In particular, cannabidiol has been shown to reduce vascular inflammation and inflammation in the heart in a model of myocarditis. The Corporation's studies in an experimental model of heart failure have confirmed the anti-inflammatory activity, as well as a prominent anti-fibrotic action of cannabidiol. Increasing fibrosis leads to progression of the heart dysfunction. Based upon this evidence, cannabidiol has the potential to offer therapeutic benefits in the treatment for myocarditis.

Acute myocarditis is a rare disease but is still a significant cause of acute heart failure and death in younger individuals and remains the most common cause of sudden cardiac death in people under 35 years of age. The most recent data from the 'Global Burden of Disease Study' suggests that the prevalence of myocarditis is approximately 22/100,000 persons (estimated U.S. patient population of 73,000), qualifying the condition as an orphan disease in the U.S. and in Europe.

Based on the large body of experimental evidence of the impressive anti-inflammatory activity of cannabidiol in models of cardiovascular disease, Cardiol believes that there is a significant opportunity to develop a therapy for acute myocarditis that would be eligible for designation as an Orphan Drug and has determined this to be its best opportunity to pursue an Orphan Drug therapy. As a comparison, the U.S. orphan drug program was successfully utilized to accelerate the first FDA approval of cannabidiol for the treatment of seizures associated with two rare and severe forms of epilepsy, Dravet syndrome and Lennox-Gastaut syndrome.

Members of Cardiol's Acute Myocarditis Steering Committee are included above under "Phase II/III study – COVID-19."

## **Outlook**

The Corporation expects that the March 31, 2021 working capital of \$17,445,170 will be sufficient to fund operations and capital requirements for more than 12 months.

During the next 12 months, the Corporation expects the following corporate milestones to be the key drivers of shareholder value. These timelines could be affected by the current COVID-19 pandemic (see "Risk Factors - COVID-19 pandemic" below).

- 1. Complete enrollment of 422 patients in International Phase II/III COVID-19 trial examining the cardioprotective properties of CardiolRx;
- 2. Submit IND application to the FDA and commence an international Phase II acute myocarditis trial led by highly distinguished Steering Committee;
- 3. Complete development of a subcutaneous cannabidiol formulation of CardiolRx for treatment of chronic heart failure, a leading cause of death and hospitalization in North America;
- 4. Up-list to Nasdag with the goal of significantly increasing U.S. investor awareness.

# **Use of Offering Proceeds**

The Corporation may reallocate the net offering proceeds from time to time depending upon our growth strategy relative to market and other conditions in effect at the time. Until we expend the net offering proceeds, we will hold them in cash and/or invest them in short-term, interest-bearing, investment-grade securities.

A comparison between the projected use of proceeds for the two-year period subsequent to closing the offering, as disclosed in the Corporation's prospectus dated May 26, 2020 and spending from June 4, 2020 (offering closing date) to March 31, 2021 is as follows:

Use of Proceeds	Amount	Spent	Remaining
Clinical Trials (Phase I and Phase II/III)	6,400,000	2,232,889	4,167,111
Pre-clinical studies	900,000	459,447	440,553
Product Development	1,100,000	86,896	1,013,104
Marketing & Business Development	900,000	-	900,000

# **Summary of Quarterly Results**

The Corporation's quarterly information in the table below is prepared in accordance with IFRS.

	Total	Profit or (Loss)		Total Profit or (Loss)		Total
	Revenue		Per Share <sup>(9)</sup>	Assets		
Three Months Ended	(\$)	Total (\$)	(\$)	(\$)		
March 31, 2021 <sup>(1)</sup>	nil	(8,909,848)	(0.26)	21,097,832		
December 31, 2020 <sup>(2)</sup>	nil	(9,666,527)	(0.15)	15,893,181		
September 30, 2020 <sup>(3)</sup>	nil	(4,401,243)	(0.13)	24,455,341		
June 30, 2020 <sup>(4)</sup>	nil	(3,624,518)	(0.13)	27,421,000		
March 31, 2020 <sup>(5)</sup>	nil	(2,948,647)	(0.11)	13,351,298		
December 31, 2019 <sup>(6)</sup>	nil	(3,058,709)	(0.12)	15,502,865		
September 30, 2019 <sup>(7)</sup>	nil	(3,491,816)	(0.13)	18,303,737		
June 30, 2019 <sup>(8)</sup>	nil	(3,642,636)	(0.14)	20,535,419		

## Note:

- 1. Net loss of \$8,909,848 included research and development of \$2,609,205, administration of \$1,419,588, corporate communications, marketing and investor relations of \$1,578,679, salaries and benefits of \$1,130,209, and share-based compensation of \$2,141,292.
- 2. Net loss of \$9,666,527 included research and development of \$7,212,105, administration of \$1,044,280, corporate communications, marketing and investor relations of \$514,859, salaries and benefits of \$445,326, and share-based compensation of \$325,901.
- 3. Net loss of \$4,401,243 included share-based compensation of \$1,900,839, administration of \$849,330, share-based compensation of \$620,277, corporate communications, marketing and investor relations of \$463,418, and salaries and benefits of \$480,459.
- 4. Net loss of \$3,624,518 included share-based compensation of \$1,070,188, research and development of \$818,059, administration of \$714,185, salaries and benefits of \$648,861, and corporate communications, marketing and investor relations of \$216,865.
- 5. Net loss of \$2,948,647 included share-based compensation of \$748,693, administration of \$679,545, research and development of \$584,253, salaries and benefits of \$511,531, and corporate communications, marketing and investor relations of \$447,372.
- 6. Net loss of \$3,058,709 included administration of \$885,240, research and development of \$1,031,020, share-based compensation of \$588,746, salaries and benefits of \$447,933, and corporate communications, marketing and investor relations of \$267,916, which was partially offset by other income of \$219,000.
- 7. Net loss of \$3,491,816 included research and development of \$1,237,727, administration of \$815,102, share-based compensation of \$551,977, corporate communications, marketing and investor relations of \$459,473, and salaries and benefits of \$459,037.
- 8. Net loss of \$3,642,636 included share-based compensation of \$867,906, administration of \$813,674, research and development of \$748,481, corporate communications, marketing and investor relations of \$688,290, and salaries and benefits of \$541,488.
- 9. Basic and fully diluted.

# **Discussion of Operations**

# Three months ended March 31, 2021, compared to the three months ended March 31, 2020

For the three months ended March 31, 2021, the Corporation's net loss was \$8,909,848, compared to a net loss of \$2,948,647 for the three months ended March 31, 2020. The increase in net loss of \$5,961,201 is a result of the following:

- Research and development increased to \$2,609,205 for the three months ended March 31, 2021, compared to \$584,253 for the three months ended March 31, 2020. During the three months ended March 31, 2021, the Corporation incurred increased research and development costs related to basic science, pre-clinical studies, and clinical studies, specifically relating to the commencement of the Phase II/III COVID-19 trial.
- Administration expense increased to \$1,419,588 for the three months ended March 31, 2021, compared to \$679,545 for the three months ended March 31, 2020. During the three months ended March 31, 2021, the Corporation's operations increased significantly due to clinical trials in progress, resulting in increased costs.
- Share-based compensation increased to \$2,141,292 for the three months ended March 31, 2021, compared to \$748,693 for the three months ended March 31, 2020. The increase in this non-cash expense is the result of the timing of the vesting of certain stock options in the prior period versus during the three months ended March 31, 2021.
- Corporate communications, marketing and investor relations increased to \$1,578,679 for the three months ended
  March 31, 2021, compared to \$447,372 for the three months ended March 31, 2020. During the three months
  ended March 31, 2021, the Corporation incurred higher costs due to a concentrated effort to increase Cardiol's
  visibility in the investor community to help facilitate the early exercise of warrants and options during Q1 2021. This
  laid the foundation to ensure a successful short form prospectus offering that has allowed the Corporation to
  further strengthen its balance sheet.

During the first quarter, the Corporation did not incur any additional pre-commercialization costs with respect to Cortalex and continued its soft launch activities to test the consumer experience and responsiveness to product attributes. The Corporation is also assessing strategies to expand market awareness of Cortalex amongst physicians in the Canadian market. Cardiol began earning revenue from sales of Cortalex in April 2021.

## **Capital Management**

The Corporation manages its capital to ensure sufficient financial flexibility to achieve the ongoing business objectives including research activities, funding of future growth opportunities, and pursuit of acquisitions.

The Corporation monitors its capital structure and makes adjustments according to market conditions in an effort to meet its objectives given the current outlook of the business and industry in general. The Corporation may manage its capital structure by issuing new shares, repurchasing outstanding shares, adjusting capital spending, or disposing of assets. The capital structure is reviewed by Management and the Board of Directors on an ongoing basis.

The Corporation considers its capital to be total equity, comprising share capital, warrants, and contributed surplus, less accumulated deficit which at March 31, 2021, totaled \$18,238,609 (December 31, 2020 – \$13,270,353).

The Corporation manages capital through its financial and operational forecasting processes. The Corporation reviews its working capital and forecasts its future cash flows based on operating expenditures, and other investing and financing activities. The forecast is updated based on activities related to its research programs. Selected information is provided to the Board of Directors.

The Corporation is not currently subject to any capital requirements imposed by a lending institution or regulatory body. The Corporation expects that its capital resources will be sufficient to discharge its liabilities as of the current statement of financial position date.

# **Off-Balance Sheet Arrangements**

As of the date of this MD&A, the Corporation does not have any off-balance sheet arrangements that have, or are reasonably likely to have, a current or future effect on the results of operations or financial condition of the Corporation, including, and without limitation, such considerations as liquidity and capital resources.

# **Liquidity and Financial Position**

At March 31, 2021, Cardiol had \$18,003,856 in cash and cash equivalents (December 31, 2020 - \$14,025,187).

At March 31, 2021, accounts payable and accrued liabilities were \$2,712,123 (December 31, 2020 – \$2,466,262). The Corporation's cash and cash equivalents balances as at March 31, 2021 and December 31, 2020 are sufficient to pay these liabilities.

The Corporation currently has minimal operating revenues and therefore must utilize its funds from financing transactions to maintain its capacity to meet ongoing operating activities.

As of March 31, 2021, December 31, 2020, and to the date of this MD&A, the cash resources of Cardiol are held with one Canadian chartered bank. The Corporation has no variable interest rate debt and its credit and interest rate risk is minimal. Accounts payable and accrued liabilities are short-term and non-interest bearing.

#### For the 2021 Fiscal Period

Cash and cash equivalents used in operating activities were \$7,084,289 for the three months ended March 31, 2021. Operating activities were affected by a net loss of \$8,909,848 and the net change in non-cash working capital balances of \$1,034,741 offset partially by non-cash adjustments of \$2,860,300. Non-cash adjustments mainly consisted of \$2,141,292 for share-based compensation and \$660,875 for expenses settled through the grant of common shares. Non-cash working capital was the result of a decrease in prepaid expenses of \$1,184,209, an increase in accounts payable and accrued liabilities of \$245,861, an increase in accounts receivable of \$38,865, and an increase in other receivables of \$57,528.

Cash and cash equivalents used in investing activities were \$nil for the three months ended March 31, 2021.

Cash and cash equivalents provided by financing activities were \$11,062,958 for the three months ended March 31, 2021, mainly as a result of the proceeds from warrants and stock options exercised.

# **Use of Working Capital**

As of March 31, 2021, Cardiol's working capital was \$17,445,170. Based on current projections, Cardiol believes that this amount is sufficient to meet its planned development activities for more than 12 months as described in the "Outlook" section above.

The Corporation has material commitments and obligations for cash resources set out below.

Contractual Obligations	Total (\$)	Up to 1 year (\$)	1 – 3 years (\$)	4 – 5 years (\$)	After 5 years (\$)
Amounts payable and	2,712,123	2,712,123	Nil	Nil	Nil
other liabilities Office lease <sup>(1)</sup>	335,499	77,821	213,002	44,676	Nil
Consulting agreements	956,287	956,287	Nil	Nil	Nil
Contract research	1,148,810	1,148,810	Nil	Nil	Nil
Total	5,152,719	4,895,041	213,002	44,676	Nil

Note:

<sup>(1)</sup> The Corporation has leased premises from third parties.

# **Related Party Transactions**

a) The Corporation entered into the following transactions with related parties:

## For the 2021 Fiscal Period

- i. Included in research and development expense is \$593,799 for the three months ended March 31, 2021 (three months ended March 31, 2020 \$238,357) paid to a company, Dalton Chemical Laboratories, Inc. operating as Dalton, that is related to a director (Peter Pekos). Mr. Pekos is also the President and CEO of Dalton. As at March 31, 2021, \$529,921 (December 31, 2020 \$505,195) was owed to this company and this amount was included in accounts payable and accrued liabilities and \$nil (December 31, 2020 \$1,470) was paid to this company and was included in prepaid expenses. Cardiol entered into an exclusive master services agreement with Dalton for the exclusive supply of pharmaceutical cannabidiol, and Cardiol has subcontracted the manufacturing of its drug product candidates to Dalton.
- b) Key management personnel are those persons having authority and responsibility for planning, directing, and controlling the activities of the Corporation directly or indirectly, including any Directors (executive and non-executive) of the Corporation. Remuneration of Directors and key management personnel of the Corporation, except as noted in (a) above, was as follows:

	Three months ended March 31, 2021	Three months ended March 31, 2020
	(\$)	(\$)
Salaries and benefits	833,119	291,375
Share-based payments	153,555	222,623
	986,674	513,998

As at March 31, 2021, \$5,674 (December 31, 2020 - \$190,940) was owed to key management personnel and this amount was included in accounts payable and accrued liabilities.

# Critical Accounting Judgments, Estimates, and Assumptions

The preparation of the Financial Statements requires Management to make certain estimates, judgments, and assumptions that affect the reported amounts of assets and liabilities at the date of the Financial Statements and reported amounts of expenses during the reporting period. Actual outcomes could differ from these estimates. The Financial Statements include estimates that, by their nature, are uncertain. The impacts of such estimates are pervasive throughout the Financial Statements and may require accounting adjustments based on future occurrences. Revisions to accounting estimates are recognized in the period in which the estimate is revised and future periods if the revision affects both current and future periods. These estimates are based on historical experience, current and future economic conditions, and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

# **Critical accounting estimates**

Significant assumptions about the future that Management has made that could result in a material adjustment to the carrying amounts of assets and liabilities, in the event that actual results differ from assumptions made, relate to, but are not limited to, the following:

- The inputs used in the Black-Scholes valuation model that were based on unobservable assumptions when the Corporation was private at the time of issuance of the equity instruments (share price and volatility) in accounting for share-based payment transactions. Share-based payments are valued on the date of grant;
- The estimate of the percentage of completion of certain research and development agreements;
- The valuation of the income tax noncurrent asset would increase if there was virtual certainty that the tax benefit of net operating losses could be applied to future periods' taxable income; and
- Intangible assets are comprised of the exclusive global license. Intangible assets are initially stated at cost, less accumulated amortization and accumulated impairment losses. Intangible assets with finite useful lives are amortized over their estimated useful lives. The exclusive global license's useful life is 9 years.

# **Critical accounting judgments**

- Management applied judgment in determining the functional currency of the Corporation as Canadian dollars;
- Management applied judgment in determining the Corporation's ability to continue as a going concern. The
  Corporation has incurred significant losses since inception. Management determined that a material going concern
  uncertainty does not exist due to the sufficient working capital to support their planned expenditure levels through
  2021. Management has raised additional financing to support their planned level of expenditure through the end of
  2022 (See "Operational Highlights Subsequent to March 31, 2021"). Future financing may come from product
  sales, licensing arrangements, research and commercial development partnerships, government grants, and/or
  corporate finance arrangements;
- Management's assessment that no impairment exists for intangible assets, based on the facts and circumstances that existed during the period; and
- Management's assessment of the impact the novel coronavirus (COVID-19) pandemic will have on operations (see "Risk Factors COVID-19 pandemic" below).

# Share Capital

Other than as described below, as of the date of this MD&A, there are no equity or voting securities of the Corporation outstanding, and no securities convertible into, or exercisable or exchangeable for, voting or equity securities of the Corporation.

As of the date of this MD&A, the outstanding capital of the Corporation includes 42,876,094 issued and outstanding common shares, of which 100,000 common shares are subject to vesting of 1/4 on each of September 25, 2021, March 29, 2022, September 29, 2022 and March 29, 2023, as well as 37,500 common shares that will fully vest on June 25, 2021, 1,020,000 Meros Special Warrants convertible automatically into common shares (upon the Corporation achieving the Meros Milestone) for no additional consideration pursuant to the Meros License Agreement, 400,000 common shares issuable to Dalton if Dalton meets certain performance objectives, and stock options and warrants as shown below:

# Stock Options

	Exercise	Options	Options
Expiry date	price (\$)	outstanding	exercisable
June 22, 2022	2.58	83,334	83,334
February 8, 2023	4.56	416,666	416,666
February 18, 2023	4.80	560,000	250,000
February 23, 2023	4.46	130,000	30,000
October 15, 2024	3.23	110,000	36,667
December 2, 2024	4.08	60,000	20,000
December 5, 2024	3.69	60,000	30,000
February 23, 2025	3.54	86,300	86,300
August 16, 2025	5.00	200,000	200,000
August 19, 2025	2.12	100,000	-
August 30, 2025	5.00	580,000	423,330
October 7, 2025	2.90	35,000	-
December 2, 2025	2.59	170,000	40,000
January 2, 2026	4.30	150,000	150,000
January 24, 2026	5.34	60,000	40,000
March 29, 2026	4.51	400,000	-
April 1, 2026	5.77	140,000	46,667
April 4, 2026	5.42	60,000	20,000
Total		3,401,300	1,872,964

## Warrants

	Exercise	Warrants
Expiry date	price (\$)	outstanding
June 4, 2022	3.25	1,070,048
June 4, 2022 <sup>(1)</sup>	2.50	55,182
August 31, 2022	4.00	824,000
May 12, 2024	4.60	3,489,400
Total		5,438,630

(1) Exercisable into one common share and one-half of one common share purchase warrant. Each additional whole warrant is exercisable into one common share at the price of \$3.25 per share until June 4, 2022.

# **Financial Instruments**

# Recognition

The Corporation recognizes a financial asset or financial liability on the statement of financial position when it becomes party to the contractual provisions of the financial instrument. Financial assets are initially measured at fair value and are derecognized either when the Corporation has transferred substantially all the risks and rewards of ownership of the financial asset, or when cash flows expire. Financial liabilities are initially measured at fair value and are derecognized when the obligation specified in the contract is discharged, cancelled, or has expired.

A write-off of a financial asset (or a portion thereof) constitutes a derecognition event. A write-off occurs when the Corporation has no reasonable expectations of recovering the contractual cash flows on a financial asset.

## **Classification and Measurement**

The Corporation determines the classification of its financial instruments at initial recognition. Financial assets and financial liabilities are classified according to the following measurement categories:

- those to be measured subsequently at fair value, either through profit or loss ("FVTPL") or through other comprehensive income ("FVTOCI"); and,
- those to be measured subsequently at amortized cost.

The classification and measurement of financial assets after initial recognition at fair value depends on the business model for managing the financial asset and the contractual terms of the cash flows. Financial assets that are held within a business model whose objective is to collect the contractual cash flows, and that have contractual cash flows that are solely payments of principal and interest on the principal outstanding, are generally measured at amortized cost at each subsequent reporting period. All other financial assets are measured at their fair values at each subsequent reporting period, with any changes recorded through profit or loss or through other comprehensive income (which designation is made as an irrevocable election at the time of recognition).

After initial recognition at fair value, financial liabilities are classified and measured at either:

- amortized cost;
- FVTPL, if the Corporation has made an irrevocable election at the time of recognition, or when required (for items such as instruments held for trading or derivatives); or,
- FVTOCI, when the change in fair value is attributable to changes in the Corporation's credit risk.

The Corporation reclassifies financial assets when and only when its business model for managing those assets changes. Financial liabilities are not reclassified.

Transaction costs that are directly attributable to the acquisition or issuance of a financial asset or financial liability classified as subsequently measured at amortized cost are included in the fair value of the instrument on initial recognition. Transaction costs for financial assets and financial liabilities classified at fair value through profit or loss are expensed in profit or loss.

The Corporation's financial asset consists of cash and cash equivalents and interest receivable, which are classified and measured at amortized cost. The Corporation's financial liabilities consist of accounts payable and accrued liabilities and convertible debt, which are classified and measured at amortized cost.

#### **Fair Value**

The Corporation provides information about its financial instruments measured at fair value at one of three levels according to the relative reliability of the inputs used to estimate the fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. The three levels of the fair value hierarchy are as follows:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2: inputs other than quotes prices included in Level 1 that are observable for the asset or liability, either directly (i.e., as prices) or indirectly (i.e., derived from prices); and
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

The Corporation has no financial instruments measured at fair value.

#### **Financial Instrument Risks**

The Corporation's activities expose it to a variety of financial risks: credit risk, liquidity risk, and market risk (including interest rate and foreign currency risk). These financial risks are in addition to the risks set out under "Risk Factors".

Risk management is carried out by the Corporation's Management team under policies approved by the Board of Directors. The Board of Directors also provides regular guidance for overall risk management.

There were no changes to credit risk, liquidity risk, or market risk for the 2021 Fiscal Period.

#### Credit risk

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation. The Corporation's financial instruments that are exposed to concentrations of credit risk relate primarily to cash and cash equivalents and accounts receivable.

The Corporation mitigates its risk by maintaining its funds with large reputable financial institutions, from which Management believes the risk of loss to be minimal. Interest receivable relates to guaranteed investment certificates and cash balances held with large reputable financial institutions as well as trade receivables. The Corporation's Management considers that all the above financial assets are of good credit quality.

## Liquidity risk

Liquidity risk is the risk that the Corporation encounters difficulty in meeting its obligations associated with financial liabilities. Liquidity risk includes the risk that, as a result of operational liquidity requirements, the Corporation will not have sufficient funds to settle a transaction on the due date; will be forced to sell financial assets at a value which is less than what they are worth; or may be unable to settle or recover a financial asset. Liquidity risk arises from accounts payable and accrued liabilities and commitments. The Corporation limits its exposure to this risk by closely monitoring its cash flow.

#### Market risk

Market risk is the risk of loss that may arise from changes in market factors, such as interest rates and foreign exchange rates.

## (a) Interest rate risk

The Corporation currently does not have any short-term or long-term debt that is variable interest bearing and, as such, the Corporation's current exposure to interest rate risk is minimal.

# (b) Foreign currency risk

Foreign exchange risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in the foreign exchange rates. The Corporation enters into foreign currency purchase transactions and has assets that are denominated in foreign currencies and thus is exposed to the financial risk of earnings fluctuations arising from changes in foreign exchange rates and the degree of volatility of these rates. The Corporation does not currently use derivative instruments to reduce its exposure to foreign currency risk.

The Corporation holds balances in U.S. dollars which could give rise to exposure to foreign exchange risk. Sensitivity to a plus or minus 10% change in the foreign exchange rate of the U.S. dollar against the Canadian dollar would affect the reported loss and comprehensive loss by approximately \$750,603 (December 31, 2020 - \$219,000).

# **Commitments and Contingency**

(i) The Corporation has leased premises from third parties. The minimum committed lease payments as at March 31, 2021, which include the lease liability payments, are as follows:

Fiscal year	
2021	77,821
2022	105,780
2023	107,222
2024	44,676
Total	\$ 335,499

(ii) The Corporation has signed various agreements with consultants to provide services. Under the agreements, the Corporation has the following remaining commitments.

Fiscal year	
2021	\$ 956,287

(iii) Pursuant to the terms of agreements with various other contract research organizations, the Corporation is committed for contract research services for 2021 at a cost of approximately \$1,148,810.

## **Breakdown of Expensed Research and Development**

	Three months ended March 31, 2021 (\$)	Three months ended March 31, 2020 (\$)
Contract research	2,237,119	506,533
Wages	316,879	79,962
Supplies	5,127	(46,705)
Regulatory	50,080	44,463
	2,609,205	584,253

# **Breakdown of Operating Expenses**

	Three months ended March 31, 2021	Three months ended March 31, 2020
Administration	( <b>\$)</b> 1,419,588	( <b>\$)</b> 679,545
Depreciation of property and equipment	33,509	35,243
Amortization of intangible assets	21,111	21,111
Corporate communications, marketing and investor relations	1,578,679	447,372
Salaries and benefits	1,130,209	511,531
Transfer agent and regulatory	46,617	49,222
Share-based compensation	2,141,292	748,693
	6,371,005	2,492,717

#### **Breakdown of Intangible Assets**

	As at March 31, 2021 (\$)	As at December 31, 2020 (\$)
Exclusive global license agreement	767,228	767,228
Accumulated amortization	(324,649)	(303,538)
Carrying value	442,579	463,690

# **Internal Controls Over Financial Reporting**

In accordance with National Instrument 52-109 — Certification of Disclosure in Issuers' Annual and Interim Filings, Management is responsible for establishing and maintaining adequate Disclosure Controls and Procedures ("DCP") and Internal Control Over Financial Reporting ("ICFR"). Management has designed DCP and ICFR based on the 2013 Internal Control Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"), with the objective of providing reasonable assurance that the Corporation's financial reports and information, including the Corporation's Financial Statements and MD&A were prepared in accordance with IFRS.

The CEO and CFO have concluded that the design of DCP and ICFR were adequate and to provide such assurance as at March 31, 2021.

#### **Limitations of Controls and Procedures**

The Corporation's Management, including the CEO and CFO, believes that any DCP or ICFR, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, they cannot provide absolute assurance that all control issues and instances of fraud, if any, within the Corporation have been prevented or detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by unauthorized override of the control. The design of any control system also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Accordingly, because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

#### **Risk Factors**

An investment in the securities of the Corporation is highly speculative and involves numerous and significant risks. Such investment should be undertaken only by investors whose financial resources are sufficient to enable them to assume these risks. Prospective investors should carefully consider the risk factors that have affected, and which in the future are reasonably expected to affect, the Corporation and its financial position. Please refer to the section entitled "Risk Factors" in the Corporation's MD&A for the financial year ended December 31, 2020 (available on SEDAR at www.sedar.com).

# **COVID-19 Pandemic**

The recent novel coronavirus (COVID-19) pandemic has impacted and could further impact our expected timelines, operations and the operations of our third-party suppliers, manufacturers, and CROs as a result of quarantines, facility closures, travel and logistics restrictions, and other limitations in connection with the outbreak. While we expect this to be temporary, there is uncertainty around its duration and its broader impact.

The Corporation has ensured that all of its employees work under conditions that comply with federal and provincial public health recommendations. In addition, the Corporation's clinical and regulatory activities have not, for the time being, significantly slowed down despite the COVID-19 crisis. These activities are now performed by Cardiol's employees from their home offices. However, the extent of any delays in the clinical activities will be a result of the ultimate effect that this crisis has on factors such as availability of physicians, clinics, and enrolment.

The Corporation's planned timing of its commercial launch of Cortalex pharmaceutical CBD has not been impacted by the COVID-19 crisis. The crisis has also not materially impacted the Corporation's third-party suppliers and manufacturers.

The current COVID-19 pandemic is a rapidly evolving crisis and it is difficult for the Corporation to accurately assess the impact of the current COVID-19 pandemic on the Corporation's business. Cardiol will continue to actively monitor the situation to assess the impact of the current COVID-19 pandemic on the Corporation's business and take appropriate measures to diminish such impacts.