

## **MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL REPORTING**

This Management's Discussion and Analysis ("MD&A") for ChitogenX Inc. (previously Ortho Regenerative Technologies Inc., the "Corporation" or "ChitogenX") provides an overview of the Corporation's operations, performance and financial results for the first quarter of our 2024 fiscal year ended on April 30, 2023 and compares those of the same period for the 2023 fiscal year. This MD&A is the responsibility of management and has been reviewed and approved by its Board of Directors. The Board of Directors is responsible for ensuring that management fulfills its responsibilities for financial reporting and is ultimately responsible for reviewing and approving the MD&A. The Board of Directors carries out this responsibility principally through its Audit Committee. The Audit Committee is appointed by the Board of Directors and is comprised of financially literate directors. This report was reviewed by the Corporation's Audit Committee and approved by ChitogenX' Board of Directors on June 29, 2023.

This document should be read in conjunction with the unaudited interim consolidated financial statements and notes thereto for the first quarter of our 2024 fiscal year ended on April 30, 2023, which have been prepared in accordance with International Financial Reporting Standards ("IFRS"). Further information about ChitogenX, is available online on SEDAR at [www.sedar.com](http://www.sedar.com).

Unless otherwise noted, all amounts are presented in thousands of Canadian dollars, except for share and per share amounts.

### **Going concern**

This MD&A has been prepared on a going-concern basis, which implies that the Corporation will continue realizing its assets and discharging liabilities in the normal course of business for the foreseeable future. As reflected in the unaudited interim consolidated financial statements, the Corporation is still a clinical stage R&D company and has not yet achieved profitability. The Corporation has relied upon the issuance of debt and equity instruments to fund its operations. During the three-month period ended April 30, 2023, the Corporation realized a net income of \$97 and used cash in operations of \$199. As at April 30, 2023, the Corporation had a negative working capital balance of \$6,949. Consequently, the Company's performance raises significant doubt about the Company's ability to continue as a going concern.

Accordingly, the ability of the Corporation to realize the carrying value of its assets and continue operations as a going concern is dependent upon its ability to obtain additional financing and ultimately on generating future profitable operations. Management anticipates that the continued advancement of its lead Ortho-R program will facilitate securing additional funds from existing and new investors. There is no assurance that any fund-raising initiatives will be successful. Factors within and outside the Corporation's control could have a significant bearing on its ability to obtain additional financing. These interim unaudited financial statements as at and for the quarter ended April 30, 2023, do not include any adjustments related to the carrying values and classifications of assets and liabilities that would be necessary should the Corporation be unable to continue as a going concern.

### **Non-IFRS Financial Measures**

This MD&A refers to certain non-IFRS measures. Management uses these non-IFRS financial measures for purposes of comparison to prior periods and development of future projections and earnings growth prospects. This information is also used by management to measure the results of ongoing operations and in analyzing our business performance and trends. These measures are not recognized measures under IFRS, do not have a standardized meaning prescribed by IFRS and are therefore unlikely to be comparable to similar measures presented by other companies. Rather, these measures are provided as additional information to complement those IFRS measures by providing further understanding of our results of operations from management's perspective. Accordingly, they should not be considered in isolation nor as a substitute for analysis of our financial information reported under IFRS. We use a non-IFRS measure, "EBITDA Loss", to provide supplemental measures of our operating performance and thus highlight trends in our core business that may not otherwise be apparent when relying solely on IFRS financial measures. EBITDA Loss is defined as net loss before (i) provision for (recovery of) income taxes; (ii) interest (income) expense and other financing costs; (iii) depreciation; and (iv) amortization of intangible assets.

### **Cautionary note regarding forward-looking statements**

This MD&A may contain some forward-looking information as defined under applicable Canadian securities laws. Forward looking information can generally be identified using forward-looking terminology such as "may", "anticipate", "expect", "intend", "estimate", "continue" or similar terminology. Forward looking information is subject to various known and unknown risks and uncertainties, many of which are beyond the ability of the Corporation to control or predict, that may cause the Corporation's actual results or performance to be materially different from actual results and are developed based on assumptions about such risks and other factors set out herein.

## GLOSSARY TERMS

**Calendar & Financial**

CDU	Convertible Debenture Units
EBITDA (L)	EBITDA Loss
FVA	Fair Value Adjustment
FY	Fiscal Year
G&A	General and Administrative
IR	Investors Relations
ITC	Investment tax credits
NCDUs	Non-Convertible Debenture Units
Q1-24	First quarter FY-24
Q4-23	Fourth quarter FY-23
Q3-23	Third quarter FY-23
Q2-23	Second quarter FY-23
Q1-23	First quarter FY-23
Q4-22	Fourth quarter FY-22
Q3-22	Third quarter FY-22
Q2-22	Second quarter FY-22
SR&ED	Scientific Research and Experimental Development Expenses
R&D	Research and Development
YTD	Year to date
YE	Year-end
WA	Weighted Average
W/C	Working Capital, defined as short-term assets less short-term liabilities

**Corporate & Operations**

API	Active Pharmaceutical Ingredient
CHGX	ChitogenX Inc. (Previously Ortho Regenerative Technologies Inc.)
CMC	Chemistry Manufacturing and Controls
cGMP	current Good Manufacturing Practice
CMO	Contract Manufacturing Organization
CSE	Canadian Securities Exchange
FDA	US Food and Drug Administration
IND	Investigational New Drug application with the FDA
MCRA	MCRA, LLC, a US based orthopedic specialty CRO
MRI	Magnetic Resonance Imaging
MTA	Material Transfer Agreement
NSERC	Natural Sciences and Engineering Research Council of Canada
ORTHO-C	Proprietary biopolymer for Articular Cartilage repair
ORTHO-M	Proprietary biopolymer for Proprietary Biopolymer for Meniscus repair
ORTHO-R	Proprietary biopolymer for Rotator cuff repair
ORTHO-V	Proprietary biopolymer for Osteoarthritis healing
OTCQB	US over-the-counter venture trading market
Polytechnique	Ecole Polytechnique de Montreal
PRP	Platelet-rich plasma
Pre-RFD	Pre-Request for Designation

## OVERVIEW OF THE BUSINESS AND BUSINESS STRATEGY

ChitogenX is a clinical stage biotech company incorporated under the Canada Business Corporations Act. The Corporation's head office, principal address and registered office is located at 16667 Hymus Blvd., Kirkland, Quebec, Canada and its wholly owned US subsidiary, OR4102022 Inc. has been incorporated on April 20, 2022 and is located at 12 Penns Trail in Newtown, Pennsylvania, USA. The Corporation's shares are publicly traded on the CSE under the symbol "CHGX", as well as on the United States OTCQB market under the symbol "CHNXF".

On September 7, 2022, The Corporation changed its corporate name from Ortho Regenerative Technologies Inc. to ChitogenX Inc. to better reflect the Company's expanded clinical and commercial opportunities, mission, values, and core competencies. The Corporation's product ORTHO-R provides an efficacious, safe and reliable regenerative medicine delivery mechanism to aid in tissue and organ repair.

## Regenerative Medicine Overview

The concept of regenerative medicine is to provide us with tools to return anatomy and physiology to a more normal appearance and behaviour. Although there are many definitions, of what constitutes regenerative medicine, the following is succinct:

Regenerative Medicine is an emerging interdisciplinary field of research and clinical applications focused on the repair, replacement or regeneration of cells, tissues or organs to restore impaired function resulting from any cause, including congenital defects, disease, trauma and aging. It uses a combination of several technological approaches that moves it beyond traditional transplantation and replacement therapies. These approaches may include, but are not limited to, the use of soluble molecules, gene therapy, stem cell transplantation, tissue engineering and the reprogramming of cell and tissue types.

Combinations of these approaches can 1) improve the natural healing process in areas of the body where it is most needed, 2) take over the function of a permanently damaged organ, 3) heal or repair a damaged organ or tissue, or 4) deliver healing "accelerators" chemicals that might inspire repair to specific damaged areas of the body.

Regenerative medicine is a relatively new and rapidly expanding field that brings together experts in biology, chemistry, materials and computer science, engineering, genetics, robotics, and other fields to find solutions to some of the most challenging medical problems faced by humankind. We believe ChitogenX is at the forefront of playing a critical role in enabling this rapidly expanding field of medicine.

*The Global Regenerative Medicine Market was estimated at \$US9B market in 2021 and is projected to grow at 22.8% CAGR through 2030. It is one of the most dynamic markets in medicine today. The musculoskeletal and wound healing segment accounted for about 60% share of the regenerative medicine market in 2021. Cell therapies are used in the treatment of musculoskeletal diseases such as bone tissue replacement, cartilage, tendon, and ligament repair and replacement. ChitogenX is well positioned to become the preferred regenerative medicine delivery system for this rapidly growing part of the industry.*

Regenerative medicine is applicable in cardiovascular, oncology, dermatology, musculoskeletal, wound healing, ophthalmology, neurology, and others. The musculoskeletal application segment accounted for the largest share of the market in 2021, whereas cardiovascular is expected to be the fastest-growing segment, registering a CAGR of 24.3% during the forecast period (2022-2030).

**Problem & Solution**

The delivery of a tissue scaffold, cellular or molecular therapy or any combination thereof makes a fundamental assumption; that the substance(s) will stay where they were placed and function as desired; if they wander off-target, the desired enhanced healing might not occur and furthermore, the potential exists for off-target effects.

Providing a reliable, biologically safe delivery mechanism that would allow the targeted body system to receive the regenerative material to aid in body system repair is, therefore, a mission-critical goal and a problem that requires solving for the regenerative medicine market to meet its projected growth estimates.

ChitogenX has acquired such a solution from the Polytechnique at the University of Montreal. Our Patented **Drug/ Biologic/ Combination** technology platform, is a muco-adhesive CHITOSAN based biopolymer matrix, specifically designed to be combined with biologics such as Platelet-Rich Plasma (PRP), Bone Marrow Aspirate Concentrate (BMAC), or other regenerative medicine treatments to enhance healing, augment and accelerate the regeneration of new tissue in various potential indications.

**For the regenerative medicine market ORTHO-R (Regenerative) is an efficacious, safe and reliable regenerative medicine delivery mechanism to targeted body systems to aid in tissue and organ repair.**

**BUSINESS STRATEGY**

**1. Leverage our proprietary platform beyond orthopedic applications by seeking R&D and/or development partners for each high potential application.**

Considering the significant bioactivity and potential to drive residency of our proprietary biopolymer – PRP implants, ChitogenX continues to assess its potential for therapeutic uses outside of the orthopedic repair market. The functionality of the chitosan framework could potentially be used in numerous other applications which could potentially address high unmet needs with profound clinical consequences.

Over the recent months, the Corporation initiated scientific discussions with experts in the tissue healing, gastrointestinal, neurological, oncological, and cardiovascular markets to identify high unmet medical needs in each category what could potentially be solved by the characteristics of our technologies. Our discussions have yielded formal commitments to participate in these various development programs for which non-dilutive grants funding will be sought.

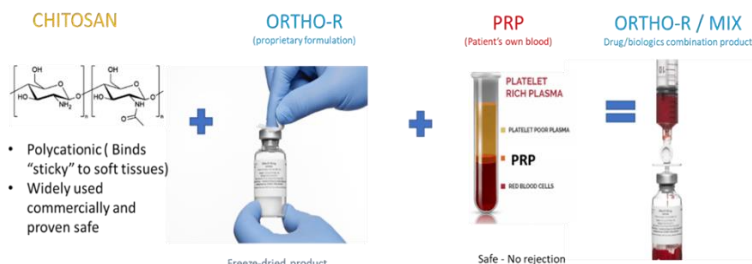
We will also investigate combining ChitogenX’s patented chitosan framework with targeted delivery of numerous autologous and synthetic therapeutics, either developed internally, licensed, or secured through strategic partnerships with biologic and/or pharma companies.

We will determine the highest value programs through consultation with our scientific and business advisory board and find R&D or development partners for the highest value projects.

**2. Complete Rotator Cuff Tear Repair U.S. phase I/II clinical trial program to establish a proof of concept for our regenerative platform**

**ORTHO-R** is formulated and designed to improve the healing of body tissues beginning with sports and occupation related injuries to tendons, meniscus, and ligaments.

ORTHO-R is a patent-protected freeze-dried formulation of a biopolymer, a lyo-protectant and a clot activator. ORTHO-R is solubilized in platelet-rich plasma (“PRP”) to form an injectable combination of the chitosan scaffold and the PRP-biologic, and an FDA designated bioactive implant that coagulate and stick to tissue after implantation.



**Management's Discussion and Analysis for the three-month period ended April 30, 2023**

*(In thousands of Canadian dollars, except for units, share and per share amounts)*

In vitro testing has allowed the Corporation to identify specific formulations that meet the following criteria for optimal commercial products:

- (i) rapid and complete solubilization in PRP;
- (ii) biopolymer-PRP mixtures having mucoadhesive paste-like handling properties desired by surgeons;
- (iii) biopolymer-PRP mixtures that coagulate rapidly to form soft tissue-adherent Drug-Biologics hybrid implants;
- (iv) biopolymer-PRP biologics implants that are mechanically stable and resist platelet-mediated clot retraction; and
- (v) dispersion of the biopolymer in the implants that is homogenous for optimal biodegradability.

The polymer-biologics hybrid mix, designated as drug/biologic combination product by the FDA, but may be considered a medical device by other regulatory jurisdictions, can be directly applied at the site of injury by a surgeon during a routine operative procedure without significantly extending the time of surgery and without further intervention. A US FDA IND was granted in December 2021, to start our proof-of-concept phase I/II Rotator Cuff Tear Repair clinical trial at 10 U.S. sites.

The use of ORTHO-R as an adjunct to standard of care anchoring/suturing techniques produced promising histological findings in small and large animal experimental models, which is hoped to translate to faster and superior rotator cuff tear repair in humans. No adverse events were found in any of the above-mentioned animal studies nor in the first five patients of the phase I/II ongoing clinical trial, which suggests a high level of safety. Progress made during the recent quarters have set the stage for achievements of major corporate/regulatory/strategic milestones over the current and upcoming calendar years.

**Market Opportunity:** *(Source: Pearl Diver HealthCare Research, iData Research.) for the first clinical application in rotator cuff repair*

Close to 700,000 shoulder rotator cuff repairs are performed in North America every year with a high 20% to 90% failure rate. ChitogenX has already initiated its FDA designated Phase I/II clinical trial giving it the regulatory lead in the U.S. for launching the first FDA approved drug/biologic combination for augmenting the performance of the standard of care surgical shoulder rotator cuff repair.

The orthopedic and sports medicine soft tissue repair market is a \$6B+ global market. The ORTHO-R product is first targeting the following soft tissue repair indications: 1) Rotator cuff tear repair: 4M injuries and 700K surgeries/year (50%+ failure rate) in USA alone, 2) Tendinopathy, 11M injuries/year, and 3) Meniscus tear repair: 1.2M injuries/year and 200K+ surgeries/year (40% failure rate) in USA alone. Standard of care for these injuries is surgery alone. The orthopedic community is looking for better treatments to improve patient outcomes and reduce procedure failure rate.

This market opportunity is further enhanced by the fact that surgeons all over the world know that soft tissue such as ligaments, tendons and meniscus are not well vascularized and thus when repaired with the standard of care (sutures, anchors, and staples) results in healing principally with scar tissue which is more fragile and susceptible to re-tear than native tissue. Given the belief by many that platelet rich plasma (PRP) improves the quality of tissue healing, surgeons have vocalized a desire to find a way to make PRP resident to the surgical repair site, so that the PRP can trigger the tissue repair cascade to these troublesome non-vascularized soft tissues. Surgeons have been using PRP for over a decade but are frustrated by the inability for the PRP alone to establish sufficient residency time on the surgical repair site due to its highly liquid nature. ORTHO-R is specifically designed to overcome the insufficient residency time issue due to its unique and patented composition. Therefore, once approved, a ready-made and very large market can be rapidly satisfied thus reducing go to market investment by the Corporation, development partner or acquirer of our technology.

The Orthopedic Market is looking for improving outcome of standard of care BUT this cannot be done at the expense of the industry economic model – which is based on time for surgery for each respective type of procedures. Over the last few months, the Corporation has worked with surgeons involved in our rotator cuff tear repair study to perfect and optimize the delivery of ORTHO-R. Current protocol now adds less than **2 minutes** to standard of care surgery.

**ORTHO-R®: Key points of differentiation**

Unlike other natural biopolymer matrix such as Hyaluronic Acid (HA) or Collagen, the chitosan natural biopolymer molecules are positively charged and therefore are muco-adhesive (sticky) to the negatively charged soft tissues of the human body (tendons, ligaments, meniscus). Characteristics related to the electrostatic binding of the combination product, resulting modification of cell function, slowing of blood clot retraction and extended release of growth factors compared to PRP alone provided justification for classification of the product as a drug. ORTHO-R has a fast coagulation onset, and with its muco-adhesive feature offer the unique benefit of significantly increasing the in-situ residency time of PRP implants from less than 24 hours for PRP alone to up to 6 weeks for ORTHO-R chitosan-PRP drug/biologic combination product, allowing PRP to contribute to the normal healing cascade. ORTHO-R is therefore a perfect matrix system for delivering biologics such as PRP, that could be used in various musculoskeletal injury conditions as well as multiple other applications where the delivery of regenerative medicine such as blood, blood products, stem cells, pharmaceuticals or other molecules is desired.

**Regulatory:**

During FY-21, the Corporation received from the U.S. FDA Office of Combination Products, the ORTHO-R product designation as a Drug/Biologics combination product.

ORTHO-R has physicochemical interacting actions on various cell types and other PRP components, therefore supporting a Drug/Biologic combination product. The ORTHO-R reconstituted in PRP Drug/biologic implant is delivered through accessory devices. The product’s jurisdictional assignment is to the FDA’s Center for Biologics Evaluation and Research (CBER). There are multiple merits of a Drug/Biologics therapeutic combination product. One of them is the ability to have a multiple mode of action label, related to the various interactions between our proprietary biopolymer and PRP, which may justify the scientific rationale behind the product’s therapeutic effect, and the generation of further intellectual property.

**Clinical:**

The status of our Phase I/II clinical trial is as follows:

- Our Investigational New Drug (IND) application was granted by the FDA in Q4-22.
- 8 U.S. based clinical sites have been selected for the trial, 8 have been initiated and are actively recruiting patients, one site has been closed and the last site activation is imminent.
- During Q4-22 (Calendar) ChitogenX completed the initial portion of the study that required staggered recruitment of five patients (one patient at a time). We are now in the parallel recruitment mode where all sites can treat patients simultaneously.
- Phase II recruitment is expected to be completed in mid-23 (calendar) depending on sites’ enrolment rate.
- Patient assessment and Phase II scoring will take place – 12 months after surgery.
- Final report is expected during FY-24.

**3. Leverage Polytechnique’s partnership to secure non-dilutive grants to drive proof of concept in multiple indications for ORTHO-R**

ChitogenX has received and is seeking non-dilutive research grants through its partnership with Polytechnique.

**Meniscus**

A first grant for \$0.5 million has been secured to test the efficacy of ORTHO-M/PRP Drug-Biologic Implant formulation, for meniscus repair. Efficacy of our product has already been demonstrated in an animal proof of concept study. Our contracted research veterinarians an expert, with the help of a major arthroscopic instrumentation company, have recently completed the surgical procedures in 20 large animals and we will have the results of this pre-clinical trial by Q2-2023 (calendar).

In February 2023, the Corporation successfully confirmed soft-tissue residency properties of its chitosan/PRP based biopolymer matrix, ORTHO-R, as it reported on the first objective of this study. The meniscus tear repair study confirmed the presence of tissue adherence and the aggregation of PRP regenerative cells imbedded in the tear. It represents the second orthopedic ORTHO-R soft tissue proof of concept application to be successfully confirmed following similar results generated in a previously reported similar study for rotator cuff tear repair. ChitogenX intends to file an IND with the FDA to commence human clinical trials with 12 months following completion of the meniscus study.

**Tendinopathies**

In February 2023, ChitogenX and its scientific partner Polytechnique secured a \$3.472 million grant from NSERC and Prima Québec. The 4-year grant will be used to advance the scientific development, expand the scope of indications, develop new biomaterials for regenerative medicine and accelerate the commercial readiness of the Corporation’s flagship ORTHO-R technology platform.

**ChitogenX Overall Value Proposition**

Technology Platform	ORTHO-R: Unique Drug / Biologics / Device Combination Product	Great Value Creation & Exit Potential
<ul style="list-style-type: none"> <li>○ Proprietary, novel, multi-indications, second generation, de-risked platform</li> <li>○ Strong intellectual property protection in three patent families</li> <li>○ Addresses significant unmet medical need in large and rapidly growing regenerative medicine market</li> <li>○ First solution to increase residence time to augment regeneration of new tissue</li> </ul>	<ul style="list-style-type: none"> <li>○ In the U.S. regulatory lead as the first PRP based drug/biologic product in human trials</li> <li>○ Target U.S. market first with clear regulatory pathway from FDA (IND to BLA)</li> <li>○ Potentially simpler regulatory pathways in major markets outside the US</li> <li>○ Advantageous manufacturing costs</li> </ul>	<ul style="list-style-type: none"> <li>○ Recent regenerative medicine transactions support higher valuation for the company</li> <li>○ Phase I/II clinical trial ongoing</li> <li>○ Multiple material milestones expected over next quarters including completion of enrollment into phase I/II clinical trial.</li> </ul>

Management’s Discussion and Analysis for the three-month period ended April 30, 2023

(In thousands of Canadian dollars, except for units, share and per share amounts)

<ul style="list-style-type: none"> <li>Validated mode of action, safe and easy to use solution</li> <li>Rapid coagulation, avoids shrinkage of implant, potentially adheres to multiple tissues</li> <li>Demonstrated efficacy in large animal model (decreased tendon gap &amp; improved bone structure)</li> </ul>	<ul style="list-style-type: none"> <li>Uses autologous PRP which can be sourced quickly and easily during surgery</li> <li>Lyophilized chitosan provides long shelf life</li> </ul>	<ul style="list-style-type: none"> <li>NASDAQ listing to be considered for 2023 calendar year</li> <li>Multiple potential regenerative medicine applications</li> <li>Experienced management, Board and Clinical Advisory Board with history of value creation</li> </ul>
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**Intellectual Property**

ChitogenX is the owner of 3 patent families. Our patent portfolio includes the following:

Family	Description	Patent Status
<u>No.1</u>	Clot-activated polymer composition for repairing the tissue of the subject, where the polymer composition adheres to the tissue and promotes cell proliferation, comprising platelet-rich plasma (PRP), a biopolymer, a salt, and a clot activator.	<ul style="list-style-type: none"> <li>Issued – Globally</li> <li>Expiry - 2030</li> </ul>
<u>No.2:</u>	Freeze-dried polymer compositions for mixing with platelet rich plasma to form implants for tissue repair or compositions for therapeutic intra-articular injection.	<ul style="list-style-type: none"> <li>Issued – Globally</li> <li>Expiry - 2035</li> </ul>
<u>No.3:</u>	Freeze-dried biopolymer scaffolds that form a hydrated microparticle dispersion after contact with blood or blood-derived fluids and stimulate anabolic wound repair processes, including angiogenesis, cell chemotaxis, tissue remodeling, and extracellular matrix.	<ul style="list-style-type: none"> <li>Issued/Allowance pending – Globally</li> <li>Expiry – 2035</li> </ul>

**Q1-2024 CORPORATE HIGHLIGHTS (February 1 to April 30, 2023)**

- On February 9, 2023, ChitogenX announced a best-efforts private placement of units at a price of \$0.225 per Unit for gross proceeds of up to \$4.35 million, pursuant to the listed issuer financing exemption (“LIFE”) available under Part 5A of National Instrument 45-106 – Prospectus Exemptions (“NI 45-106”). The LIFE financing was terminated in April 2023.
- On February 14, 2023, the Corporation successfully confirmed soft-tissue residency properties of its chitosan/PRP based biopolymer matrix, ORTHO-R, in large animal meniscus tear repair study. The grant-supported meniscus tear repair study confirmed the presence of tissue adherence and the aggregation of PRP regenerative cells imbedded in the tear. It represented the second orthopedic ORTHO-R soft tissue proof of concept application to be successfully confirmed following similar results generated in a previously reported similar study for rotator cuff tear repair.
- On February 16, 2023, the Corporation announced having secured, a \$3.47 million grant from The Natural Sciences and Engineering Research Council of Canada (“NSERC”) and Prima Québec in partnership with Polytechnique Montréal. The 4-year grant will be used to advance the scientific development, expand the scope of indications, develop new biomaterials for regenerative medicine and accelerate the commercial readiness of the Company’s flagship ORTHO-R technology platform.
- On April 4, 2023, the Corporation announced a new non-brokered private placement offering of units at a price of \$0.20 per unit for gross proceeds of \$2.5 million. This offering replaced the LIFE offering previously announced on February 6, 2023.
- On April 14, 2023, the Corporation announced a change of auditor from Ernst & Young LLP to Guimond Lavallée, Chartered Professional Accountants Corporation.

**Events Subsequent to the end of the quarter / Balance Sheet Restructuring**

- On May 1, 2023, ChitogenX amended the terms of its non-brokered private placement offering announced on April 4, 2023. The amended non-brokered private placement offering now consists of 33,333,333 units at a price of \$0.15 per units for maximum gross proceeds of up to \$5.0 million.
- On May 1, 2023, convertible debentures previously issued in 2019 and 2020 and totalling \$3.2 million in capital and interest matured.
- On May 5, 2023, the Corporation announced the first closing of its non-brokered private placement offering of units for \$3.9 million, including \$1.8 million of Insiders’ subscriptions. Holders of debentures that matured on May 1, 2023, opted to reinvest \$2.1 million of principal and accrued interest into the private placement.



Management’s Discussion and Analysis for the three-month period ended April 30, 2023

(In thousands of Canadian dollars, except for units, share and per share amounts)

- On June 5, 2023 ChitogenX closed a \$0.3 million second tranche of its previously announced non-brokered private placement offering of units. The second tranche of the offering consists of gross cash proceeds of \$41 and \$247 in debt conversions from holders of convertible debentures which matured on May 1, 2023.
- On June 15, 2023 the ChitogenX announced it had retained the services of the Bruder consulting & Venture group to broaden and accelerate ongoing strategic development partnership discussions.

**SELECTED FINANCIAL DATA**

The following table sets forth financial information relating to the periods indicated and should be read in conjunction with the April 30, 2023 unaudited interim financial statements.

	Q1-24	Q1-23	Change	
	\$	\$	\$ <sup>1</sup>	% <sup>2</sup>
<b>Expenses</b>				
R&D	418	663	(245)	-37%
G&A	584	567	17	3%
Share-based compensation	56	42	14	33%
Financial	339	351	(12)	-3%
	1,397	1,623	(226)	-14%
Fair Value adjustment embedded derivative	(1,443)	(734)	(709)	97%
Fair Value adjustment on warrants	(51)	(39)	(12)	31%
<b>Net Income (Loss) and Comprehensive Income (Loss)</b>	97	(850)	947	-111%
<b>Income (Loss) per share</b>				
Weighted average number of shares outstanding	51,038,776	39,552,285	11,486,491	29%
Basic and diluted Income (loss) per share	0.00	(0.02)	(0.02)	-109%

- A positive variance represents a negative impact to net loss and a negative variance represents a positive impact to net loss
- Percentage change is presented in relative values

**EBITDA(L) Reconciliation** (See “Management’s Responsibility for Financial Reporting” – “Non-IFRS Financial Measures”)

The following table provides a reconciliation of net loss to EBITDA(Loss) for Q1-24 as compared to Q1-24.

	Q1-24	Q1-23	Change	
	\$	\$	\$ <sup>1</sup>	% <sup>2</sup>
<b>Net Income (loss)</b>	97	(850)	947	-111%
Add (deduct)				
Financial	339	351	(12)	-3%
Fair Value adjustment embedded derivative	(1,443)	(734)	(709)	97%
Fair Value adjustment on warrants	(51)	(39)	(12)	31%
Depreciation – equipment	3	10	(7)	-70%
Amortization – intangible assets	8	8	-	0%
<b>EBITDA (Loss)</b>	(1,047)	(1,254)	207	-17%

- A positive variance represents a negative impact to net loss and a negative variance represents a positive impact to net loss
- Percentage change is presented in relative values.

Selected items	Q1-24 vs Q1-23
<b>Revenues</b>	<ul style="list-style-type: none"> <li>CHITOGENX is a clinical stage company. No revenues were generated during each of Q1-24 and Q1-23.</li> </ul>
<b>R&amp;D expenses</b>	<ul style="list-style-type: none"> <li>R&amp;D expenses include internal and external expenses. Internal expenses represent mostly salaries and consulting fees for our staff. External expenses include all development costs related to work performed under our Collaborative R&amp;D contract with Polytechnique as well as specific manufacturing activities, regulatory, pre-clinical and clinical work to advance our pipeline. R&amp;D expenses are presented net of R&amp;D tax credits (ITCs) recoverable from the provincial government for Scientific Research and Experimental Development (SR&amp;ED) programs, and net of government grants.</li> <li>R&amp;D expenses are also presented net of grants which are amortized over their respective term.</li> <li>R&amp;D expenses for Q1-24 were 37% lower than Q1-23 due to the timing and nature of R&amp;D activities.</li> </ul>
<b>G&amp;A expenses</b>	<ul style="list-style-type: none"> <li>G&amp;A expenses include salaries and consulting fees paid to non-R&amp;D staff, professional fees, conferences, travel expenses, as well as investors relation activities.</li> </ul>

## Management's Discussion and Analysis for the three-month period ended April 30, 2023

(In thousands of Canadian dollars, except for units, share and per share amounts)

	<ul style="list-style-type: none"> <li>G&amp;A spending in Q1-24 was up only 3% compared to Q1-23 at \$0.6 million. G&amp;A in Q1-23 included a severance charge for the termination of our previous CEO. G&amp;A in Q1-24 included a special charge for salary deferral, as management opted to defer salaries for preserving cash to support R&amp;D operations.</li> </ul>
<b>Share-based compensation (SBC)</b>	<ul style="list-style-type: none"> <li>Represents the expense related to issuing stock options to staff, consultants and board members. Variances for the comparative quarters include non-recurrent grant to a new Board member as well contractual vesting for members of management on options already outstanding.</li> <li>There were nominal changes for the Q1-24 quarter.</li> </ul>
<b>Financial expenses</b>	<ul style="list-style-type: none"> <li>Financial expenses include interest on loans, non-convertible and convertible debentures, as well as effective interest on debentures as well as foreign exchange gain or loss.</li> <li>Financial expenses for Q1-24 were \$0.3 million, down 3% compared to the Q1-23 period. The reduction was due to partial repayment of the Q4-22 bridge financing. Financial expenses will reduce significantly following conversion of \$2.3 million of CDUs into the May 2023 PIPE (See "Subsequent Events")</li> </ul>
<b>Fair Value Adjustment ("FVA") of Embedded Derivative</b>	<ul style="list-style-type: none"> <li>On October 19, 2022, the Corporation announced the amendment of three series of CDUs to extend their respective maturity dates.</li> <li>An Embedded derivative comprised of the conversion options classified as liability was created following the amendment of the CDUs. Starting Q4-22, any change in the Fair Value of the Conversion Option of the CDUs ("FVCO") has to be recorded as a financial expense.</li> <li>During the Q1-24 and Q1-23 periods, the change in the FVCO, led to a material Fair Value Adjustment ("FVA") of the conversion option representing a \$1.4 million and \$0.7 million gain.</li> </ul>
<b>Fair Value Adjustment ("Fair Value Adjustment") on warrants</b>	<ul style="list-style-type: none"> <li>The terms of the warrants issued as part of the December 2022 Bridge financing led to the creation of a warrant liability.</li> <li>During each of Q1-24 and Q1-23, the revaluations of the Warrants' fair value as compared to the YE-22 value were nominal.</li> </ul>
<b>Net Income (Loss) for the period</b>	<ul style="list-style-type: none"> <li>Due to the significant gain on re-evaluating the Fair Value of the Conversion Option of the debentures, the Corporation generated net income of \$0.1 million for Q1-24 compared to a \$0.9 million loss in Q1-23.</li> </ul>
<b>EBITDA (L)</b>	<ul style="list-style-type: none"> <li>After eliminating the impact of the financial expenses, as well as depreciation and amortization, but also after eliminating the impact of the combined gain on revaluation of the CDU embedded derivative and warrant liability, our EBITDA loss during Q1-24 was \$1.0 million compared to \$1.3 million for Q1-23, representing a 17% decrease, and reflecting the decrease in R&amp;D expenses described above.</li> </ul>

## SELECTED BALANCE SHEET HIGHLIGHTS

The following table sets forth the financial information related to the Corporation's statements of financial position for the periods indicated and should be read in conjunction with the unaudited financial statements for quarter ended April 30, 2023.

As at,	April 30, 2023	January 31, 2023	Change	
	\$	\$	\$	%
Cash	426	108	318	294%
Prepays and deposits	191	122	69	57%
Intangible Assets	291	299	-8	-3%
Total assets	1,139	738	401	54%
Trade accounts payable and accrued liabilities	2,716	1,793	923	51%
Notes	480	480	0	0%
Advances from Shareholders	1,267	750	517	69%
Convertible Debentures - Short term	2,783	2,681	102	4%
Convertible Debentures - Long term	2,421	2,363	58	2%
Embedded derivative - Short term	-	1,098	-1,098	-100%
Embedded derivative - Long-term	651	996	-345	-35%
Total liabilities	10,829	10,581	248	2%
Common shares	10,357	10,357	0	0%
Warrants	2,391	2,406	-15	-1%
Contributed surplus	2,622	2,551	71	3%
Deficit	(25,060)	(25,157)	97	0%

- A positive variance represents a positive impact to our balance sheet and a negative variance represents a negative impact to our balance sheet.
- Percentage change is presented in relative values



## Management's Discussion and Analysis for the three-month period ended April 30, 2023

(In thousands of Canadian dollars, except for units, share and per share amounts)

Selected items	Q1-24 vs YE-23
Cash	<ul style="list-style-type: none"> <li>Cash at the end of Q1-24 was \$0.4 million compared to \$0.1 million at the start of the fiscal year. Cash improved as the Corporation was able to secure commitments into the May 2023 unit deal financing prior to the end of the quarter. (See subsequent events).</li> </ul>
Total Assets	<ul style="list-style-type: none"> <li>The \$0.3 million increase in cash during Q1-24 period contributed to a \$0.4 million increase in our total assets between the end of FY-23 and Q1-24.</li> </ul>
Trade AP and accrued liabilities	<ul style="list-style-type: none"> <li>Trade accounts payables and accrued liabilities increased by \$0.9 million during the first 3 months of FY-24 as the Corporation preserved cash for ongoing activities and recurrent suppliers.</li> </ul>
Advances from Shareholders	<ul style="list-style-type: none"> <li>During Q4-23, we received a \$0.75 million contribution for the private placement closed during Q2-24. (See "Subsequent Events"). Subsequent advances totaling \$517 were secured during Q1-24.</li> </ul>
Notes	<ul style="list-style-type: none"> <li>Notes were issued as part of the December 2021 bridge financing which matured in December 2022. They continue to bear interest until full repayment.</li> </ul>
Convertible debentures (Short-term)	<ul style="list-style-type: none"> <li>During FY-20 and FY-21, the Corporation issued \$3.2 million of CDUs to fund its operations. Debentures representing \$0.3 million have been converted since issuance. Considering the CDUs mature on May 1, 2023, the Convertible Debentures were presented as short-term liability as at YE-23.</li> <li>Subsequent to Q1-24, \$2.3 million of CDU and interest have been converted into the private placement closed in Q2-24 (See Subsequent events).</li> </ul>
Convertible debentures (Long-term)	<ul style="list-style-type: none"> <li>During Q4-21 the Corporation secured a \$3.0 million NCDU financing to fund its activities. During Q4-23, an agreement has been reached with 100% of the NCDU Debenture holders to extend the term of the debenture to February 1, 2025 and add a conversion features. Following this amendment, the debentures previously referred as NCDUs are now presented as CDUs.</li> </ul>
Embedded derivative (Short-Term)	<ul style="list-style-type: none"> <li>Represents the conversion option liability for the CDU maturing on May 1, 2023 (Short term).</li> <li>The change in value of the conversion option for these CDUs led to a \$1,098 gain during the quarter.</li> </ul>
Embedded derivative (Long-Term)	<ul style="list-style-type: none"> <li>Represents the conversion option liability for CDU maturing on February 2025 (Long-term).</li> <li>The change in value of the conversion option for these CDUs led to a \$345 gain during the quarter.</li> </ul>
Total Liabilities	<ul style="list-style-type: none"> <li>Total liabilities have increased slightly by \$0.2 million between YE-23 and Q1-24 due to the increase in payables and advances from shareholders which exceeded the gain of reevaluation of the CDU derivative.</li> </ul>
Common Shares	<ul style="list-style-type: none"> <li>No change for the quarter.</li> </ul>
Warrants	<ul style="list-style-type: none"> <li>Warrants decreased slightly during the quarter due to the expiry of some warrants.</li> </ul>
Contributed Surplus	<ul style="list-style-type: none"> <li>The contributed surplus increased by \$0.1 million as a result of share-based compensation expense and the expiry of warrants.</li> </ul>
Deficit	<ul style="list-style-type: none"> <li>The increase reflects the performance of the Corporation during FY-23. (See "Statement of Loss" commentaries)</li> </ul>

## SELECTED QUARTERLY FINANCIAL INFORMATION

The following table sets out the Corporation's selected unaudited quarterly financial information for the eight quarters ended April 30, 2023. This information is derived from unaudited quarterly financial statements prepared by management in accordance with IFRS. The following quarterly information is presented on the same basis as the interim unaudited financial statements and should be read in conjunction with those statements and their accompanying notes.

	Q1-24	Q4-23	Q3-23	Q2-23	Q1-23	Q4-22	Q3-22	Q2-22
R&D Expenses (Net)	418	561	567	444	663	415	591	141
G&A expenses	584	509	523	484	567	309	357	367
Share-based compensation	56	92	95	162	42	67	43	64
Financial expenses (income)	339	1,070	373	349	351	370	266	332
FVA embedded derivative	(1,443)	-	277	(78)	(734)	(279)	666	-
Fair Value adjustment on warrants	(51)	(72)	22	2	(39)	(31)	-	-
<b>Net Income (Loss)</b>	<b>97</b>	<b>(2,160)</b>	<b>(1,857)</b>	<b>1,363</b>	<b>(850)</b>	<b>(851)</b>	<b>(1,923)</b>	<b>(904)</b>
<b>Income (Loss) / share (Basic and diluted)</b>	<b>0.00</b>	<b>(0.02)</b>	<b>(0.02)</b>	<b>(0.02)</b>	<b>(0.06)</b>	<b>(0.03)</b>	<b>(0.04)</b>	<b>(0.04)</b>
<b>EBITDA (Loss)</b>	<b>(1,047)</b>	<b>(1,145)</b>	<b>(1,171)</b>	<b>(1,076)</b>	<b>(1,254)</b>	<b>(773)</b>	<b>(973)</b>	<b>(554)</b>

(See "Management's Responsibility for Financial Reporting" – "Non-IFRS Financial Measures")

## Management's Discussion and Analysis for the three-month period ended April 30, 2023

(In thousands of Canadian dollars, except for units, share and per share amounts)

Notes	Valuable information
<b>R&amp;D expenses</b>	<ul style="list-style-type: none"> <li>R&amp;D expenses fluctuate based on the timing of R&amp;D activities. R&amp;D activities have accelerated over the last year as the Corporation was getting ready to start and initiated its Phase I/II trial for testing Ortho-R for rotator cuff repair.</li> </ul>
<b>G&amp;A expenses</b>	<ul style="list-style-type: none"> <li>G&amp;A expenses have been stable over the last 2 years. G&amp;A expenses have fluctuated due to the impact of senior management changes that took place during the various periods. We expect G&amp;A to be stable for the coming quarters.</li> </ul>
<b>Share-Based Compensation</b>	<ul style="list-style-type: none"> <li>Share-based compensation fluctuates as a result of staff changes, and due to the timing of expense recognition associated with the vesting of the options issued. Q2-23 SBC included the impact of issuing options and RSUs to the new CEO and new chief Medical Officer.</li> </ul>
<b>Financial expenses</b>	<ul style="list-style-type: none"> <li>Financial expenses have been relatively stable over the last few quarters after having increased in Q4-21 following the implementation of the \$3.0 million NCDU, and since Q4-22 due to incremental charges related to the December 2022 bridge financing which matures in Q4-23. The \$0.7 million increase between Q3-23 and Q4-23 was mainly due to the non-recurrent loss on extinguishment of the NCDU debt.</li> <li>Interest charges on the CDUs will go down over time as CDU holders opt to convert their debenture prior to maturity. (See "Subsequent events")</li> </ul>
<b>FVA of embedded derivative</b>	<ul style="list-style-type: none"> <li>The changes to the terms of the CDU conversion price as well as the variation in share price during the last quarters has led to quarterly adjustments to the FVCO of the CDUs representing respective decreases (gains) or increases (losses) since the embedded derivative was created in Q1-24.</li> </ul>
<b>FVA on warrants</b>	<ul style="list-style-type: none"> <li>There has been nominal quarterly variations (adjustments) to the fair value of the warrants issued as part of the December 2021 bridge financing</li> </ul>
<b>Net Income or Loss</b>	<ul style="list-style-type: none"> <li>Over the last 2 years quarters, fluctuations in net income or loss has been mainly impacted by the FVA of the derivative liability related to the CDUs as well as to a lesser extent to the fluctuations of the R&amp;D, G&amp;A and SBC expenses.</li> <li>Net income in Q1-24 is due to the \$1.4 million positive FVA of the derivative liability.</li> </ul>
<b>EBITDA (Loss)</b>	<ul style="list-style-type: none"> <li>EBITDA (Loss) (See "Management's Responsibility for Financial Reporting" – "Non-IFRS Financial Measures") eliminates the impact of the FVA on the CDU, NCDU, ITC and other financings which reflect the Corporation's financing strategy adopted to attract the required capital to fund its operations.</li> <li>After eliminating such expenses, the EBITDA (Loss) in Q1-24 decreased by \$0.1 million from Q4-23 reflecting a slight decrease in R&amp;D spending. Fluctuations over prior quarter were directly related to variations in R&amp;D and G&amp;A spendings described above.</li> </ul>

## LIQUIDITIES AND CAPITAL RESOURCES

For the 3-month periods ended on,	30-Apr-23	30-Apr-22	Change	
			\$	%
<b>Operating activities:</b>				
Net income (loss) from operations	97	(850)	947	-111%
Other items not affecting cash	(1,249)	(270)	(979)	363%
Changes in non-cash working capital	953	399	554	139%
Cash used in operations	(199)	(721)	522	-72%
<b>Investing activities:</b>				
Cash used in investing activities	-	-	-	100%
<b>Financing activities:</b>				
Cash provided by financing activities	517	2,571	(2,054)	-80%
<b>Cash, beginning of period</b>	<b>108</b>	<b>313</b>	<b>(205)</b>	<b>-65%</b>
(Decrease) increase in cash	318	1,850	(1,532)	-83%
Effect of foreign exchange on cash	-	27	(27)	-100%
<b>Cash, end of period</b>	<b>426</b>	<b>2,190</b>	<b>(1,764)</b>	<b>-81%</b>

1. A positive variance represents a positive impact to cash flows and a negative variance represents a negative impact to cash flows

2. Percentage change is presented in relative values

Selected items	Q1-24 vs Q1-23
<b>Cash used in operations</b>	<ul style="list-style-type: none"> <li>Cash used in operations represents the cash flows from operations, excluding income and expenses not affecting cash plus changes in non-cash working capital items.</li> <li>Cash used in operations was \$0.2 million for Q1-24 as compared to \$0.7 million for Q1-23 period, representing a \$0.5 million decrease. The decrease results from the \$0.9 million decrease in net loss, and a \$0.6 million</li> </ul>

## Management's Discussion and Analysis for the three-month period ended April 30, 2023

(In thousands of Canadian dollars, except for units, share and per share amounts)

	increase in non-cash working capital which were offset by items not affecting cash which captured the combined \$1.5 million gains on fair value adjustments to the CDU embedded derivative and warrant liability.
<b>Cash used in investing activities</b>	• No investments during YTD-23, compared to nominal investment in YTD-22.
<b>Cash provided by financing activities</b>	• Financing activities in Q1-24 generated \$0.5 million from shareholder commitments into the Q2-24 PIPE financing (See "Subsequent Events") compared to \$2.6 million in Q1-23 representing the net impact of the April 2022 PIPE.
<b>Cash, End of the period</b>	• The Corporation ended Q1-24 with \$0.4 million of cash compared to \$0.1 million at the end of FY-23. Cash improved as the Corporation was able to secure commitments into the Q2-24 unit deal financing prior to the end of the quarter.

**Cash, and Working Capital**

As at,	2023-04-30	2023-01-31	Change	
	\$	\$	\$ <sup>1</sup>	% <sup>2</sup>
Cash	426	108	318	294%
Accounts payables and accrued liabilities	2,716	1,793	923	51%
Convertible debentures - short term <sup>3</sup>	2,783	2,681	102	4%
Convertible unit Bridge	480	480	-	100%
Total current liabilities	7,757	7,222	535	7%
Working Capital	(6,949)	(6,826)	(123)	2%
Adjusted Working Capital <sup>4</sup>	(4,609)	(6,826)	2,217	32%

1. A positive variance represents a positive impact, and a negative variance represents a negative impact

2. Percentage change is presented in relative values

3. \$2.34 M of CDUs and interest converted into shares subsequent to the end of Q1-24 (See "Subsequent events")

4. Takes into consideration the Debt conversion into the May 2013 PIPE.

Cash at the end of Q1-24 was \$0.4 million as compared to \$0.1 million at the end of YE-23 representing a \$0.3 million increase. During FY-23, working capital was impacted by the reclass of the CDUs and the embedded derivative on the CDUs, both now presented as short-term liability. Working Capital at the end of Q1-24 showed a \$6.9 million deficit compared to a \$6.8 million deficit as at the end of FY-23. Included in the working capital deficit is the \$2.8 million CDUs maturing May 1, 2023 plus interest, of which \$2.34 million will be eliminated on conversion of the CDUs (See "Subsequent Events").

During prior periods, the Corporation has demonstrated its ability to raise the necessary capital to support its operations and achieve development milestones. However, there is no assurance that the Corporation will be able to secure the necessary financing to fund its various development programs. Management has continued to implement IR and financing initiatives to attract the required capital to fund its operations and deliver R&D and corporate milestones over the next fiscal year. (See "Overview of the Business" and "Going concern").

The Corporation's use of available funds over the coming year is of utmost concern to the Board. Since the extent and timing of warrant exercise as a source of financing are uncertain, management continues to look for alternative sources of financing to secure the required capital necessary to fund its operations and development projects. Management's focus is on securing equity-based financings from Canadian and US based institutional and/or accredited investors. The Corporation is also actively promoting its technologies to strategic partners.

**Discussion of operating cash requirements**

All programs in the Corporation's current portfolio will require a significant investment to increase their market value (through, for example, clinical trials) or to attract a strategic partner. We estimate that \$30 million will be required to bring our rotator cuff (Ortho-R), meniscus (Ortho-M), and cartilage (Ortho-C) programs to market. There are several areas where duplication between programs can provide savings such as the manufacture of the chitosan material, which is common across our product platform. We therefore do not need to replicate several manufacturing activities, or some associated costs, for each of the projects.

Ortho-R for the repair of rotator cuff tears is a clinical development stage program and represents our lead product for commercialization. We currently estimate that an additional investment of at least \$3 million will be required to provide proof of concept in human and another \$10 million to bring the same program to commercialization.

Ortho-M (meniscus) is the Corporation's second candidate and is also in a development phase. Proof of efficacy in a large animal preclinical model is currently taking place 80% of which is funded by 3<sup>rd</sup> party grants. Ortho-M's development pathway and plan will be similar to

**Management's Discussion and Analysis for the three-month period ended April 30, 2023**

*(In thousands of Canadian dollars, except for units, share and per share amounts)*

Ortho-R and will benefit from all cGMP activities performed on scaling-up Ortho-R. Consequently, management estimates that \$1.5 million will be required prior to submitting an IND application prior to testing Ortho-M in human for meniscus tear repair.

Ortho-C and Ortho-V are currently at an earlier stage of development and management does not intend to commit any sums to the advancement of these projects until it successfully advances Ortho-R and Ortho-M in human clinical testing.

In order to successfully advance its current R&D programs, ChitogenX entered into a Collaborative R&D Agreement with Polytechnique to ensure access to Polytechnique's staff, expertise, and laboratories. The agreement expires on August 14, 2024.

In February 2023, the Corporation secured a \$3.47 million grant from NSERC and Prima Québec in partnership with Polytechnique Montréal. The 4-year grant will be used to advance the scientific development, expand the scope of indications, develop new biomaterials for regenerative medicine and accelerate the commercial readiness of the Company's flagship ORTHO-R technology platform.

**Statement of Compliance**

The unaudited interim financial statements included in this MD&A for the quarter ending April 30, 2023 have been prepared in accordance with *International Financial Reporting Standards* as issued by the *International Accounting Standards Board ("IASB")* as well as with those standards and interpretations as issued by the *International Financial Reporting Interpretations Committee ("IFRIC")* issued and effective or issued and early adopted as at the time of preparing these interim financial statements.

**Use of Estimates and Judgements**

Reference should be made to the Corporation's 2022 annual financial statements, *note 3*, for an extended description of the information concerning the Corporation's significant judgments, estimates and assumptions that have the most significant effect on the recognition and measurement of assets, liabilities, income and expenses.