

## SUMMARY FINANCIAL INFORMATION AND MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

January 30, 2019

### **Statement of Management Responsibility**

The following "Summary Financial Information and Management's Discussion and Analysis of Financial Condition and Results of Operations" ("MD&A") for the twelve month periods ended October 31, 2018 and October 31, 2017 was prepared by management of Avivagen Inc. ("Avivagen" or the "Corporation") and approved by the Board of Directors on January 30, 2019.

Management is responsible for ensuring that processes are in place to provide sufficient knowledge to support the representations made in these filings. The Audit Committee and Board of Directors provide an oversight role with respect to all public financial disclosures by the Corporation, and have reviewed this MD&A and the accompanying financial statements.

The Interim Chief Executive Officer (the "Interim CEO"), and the Chief Financial Officer (the "CFO"), in accordance with National Instrument 52-109, have both certified that they have reviewed the audited financial statements and this MD&A (the "filings") and that, based on their knowledge having exercised reasonable diligence, that (a) the filings do not contain any untrue statement of a material fact or omit to state a material fact required to be stated or that is necessary to make a statement not misleading in light of the circumstances under which it was made, with respect to the period covered by the filings; and (b) the financial statements together with the other financial information included in the filings fairly present in all material respects the financial condition, financial performance and cash flows of the Corporation, as of the date of and for the period presented in the filings.

Investors should be aware that inherent limitations on the ability of certifying officers of a venture issuer to design and implement, on a cost-effective basis, the disclosure controls and procedures and internal control over financial reporting as defined in NI 52-109 will result in additional risks to the quality, reliability, transparency and timeliness of interim filings, annual filings, and other reports provided under securities legislation.

In contrast to the certification required for non-venture issuers under National Instrument 52-109 *Certification of Disclosure in Issuers' Annual and Interim Filings* (NI 52-109), the Corporation does not include representations relating to the establishment and maintenance of disclosure controls and procedures and internal control over financial reporting, as defined in NI 52-109. In particular, the Interim CEO and CFO filing this MD&A are not making any representations relating to the establishment and maintenance of:

- i) Controls and other procedures designed to provide reasonable assurance that information required to be disclosed by the Corporation in its filings or other reports filed or submitted under securities legislation is recorded, processed, summarized and/or reported within the time periods specified in securities legislation; and
- ii) A process to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with the issuer's IFRS reporting.

This MD&A discusses material changes in the Corporation's financial condition, results of operations and cash flows for the twelve month period ended October 31, 2018. Such discussion and comments on liquidity and capital resources should be read in conjunction with the audited financial statements dated October 31, 2018 and related notes which have been prepared in accordance with International Financial Reporting Standards ("IFRS"). The reader should also refer to the Corporation's Annual Information Form dated July 4, 2018, Risk Factor section (the "AIF Risk Factors"), which risk factors are incorporated herein by reference. To the extent there is any conflict between the AIF Risk Factors and risks identified in this MD&A, the risks identified in this MD&A will govern.

This discussion and the comments contained hereunder include both historical information and forward-looking information. Statements including expressions such as "anticipate", "believe", "estimate", "expect", "foresee", "intend", "plan", "will", and similar expressions are forward-looking statements. The forward-looking statements are not historical facts but reflect the Corporation's current assumptions and expectations regarding future events. The forward-looking information, which is generally information stated to be anticipated, expected, or projected by the Corporation, involves known and unknown risks, uncertainties and other factors that may cause the actual results and performance of the Corporation to be materially different from any future results and performance expressed or implied by such forward-looking information. Forward-looking statements in this MD&A include, without limitation, statements

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about the Corporation's expectations with respect to future orders of its OxC-beta™ Livestock product, revenues, expenses, assets, and liabilities; whether UNAHCO will scale up the commercial roll out of OxC-beta™ Livestock by purchasing a recurring, monthly or quarterly supply for use in swine; whether UNAHCO will continue making purchases from Avivagen or increase its level of purchases; the Corporation's intention to pursue additional funds through long-term debt or equity financings; the Corporation's expectations with respect to future research expenditures; the ability of the Corporation's products to reduce the development of antibiotic resistant pathogens that are widely thought to occur as a result of food animal production and can threaten human health or to replace antibiotics in food-animal applications; the Corporation's long term goals and expectations with respect to its products and the application thereof; the Corporation's planned efforts with respect to regulatory approval in additional jurisdictions and the funding required for such processes; the Corporation's plans to expand into additional geographic markets; the ability of the Corporation and its products to access the human supplement, prophylactic or therapeutic markets; anticipated effects or outcomes of commercial agreements entered into by the Corporation; the Corporation's expectations with respect to total global animal feed production in target species of poultry, swine and cattle to which OxC-beta™ Livestock could be added; and the expected impacts on the Corporation of future IFRS accounting pronouncements. In addition to the AIF Risk Factors, potential risks and uncertainties include, without limitation, the uncertainties inherent in the early revenue stage of the Corporation and the development of biotechnology products for use in animals and humans; the ability to continue as a going concern; the need for significant additional funding; extensive government regulation of the Corporation's products; the ability of the Corporation to obtain third-party regulatory support; the success of Corporation-sponsored and customer-sponsored product trials; the ability of the Corporation to obtain and enforce patent protection; the risk of product liability claims and product recalls; the Corporation's sensitivity to unfavourable publicity and consumer perception; the political and legal risk associated with the Corporation's major markets being located outside of Canada; the Corporation's dependence on international advisors and consultants; the volatility of the Corporation's share price; the Corporation's susceptibility to global economic stress; rapid developments in technology and acquisition of future technology, including developments by competitors; the introduction of products to market; protection of intellectual property; dependence on key employees; dependence on partners for development, regulatory and commercial advancement of products; significant portions of revenue from a single client; reliance on a sole source for manufacturing; and reliance on third parties for marketing and distribution of products.

### **Corporation Overview**

Avivagen is domiciled in Canada and is located at 100 Sussex Drive, Ottawa, Ontario, Canada K1A 0R6. The Corporation is a life-sciences company that is developing and commercializing products to support animal immune health, including replacing antibiotics in livestock feeds to optimize the health and growth of the animals by supporting the animal's own health defences. The Corporation's unique, proprietary technology, known as OxC-beta™ (fully-oxidized beta-carotene) Technology, is based on Avivagen's discovery of the propensity of the micronutrient  $\beta$ -carotene to naturally undergo oxidation to generate polymeric oxidation products. This previously unrecognized class of compound possesses a unique combination of immunological health benefits that very plausibly account for  $\beta$ -carotene's non-vitamin A activity.

Avivagen has further discovered that the health benefits of the OxC-beta™ Technology afford the Corporation the opportunity to provide its lead product, OxC-beta™ Livestock, as an entirely new and novel, non-drug replacement product for in-feed antibiotics for livestock used widely for growth promotion and disease prevention. The use of antibiotics as growth promoters in the feedstock of cattle, swine and poultry has been banned for over 10 years in Europe and their use has more recently become a source of urgent concern to health authorities, governments and consumers, leading them to demand changes now being supported by leading international food processors, retailers and restaurant chains. OxC-beta™ Livestock product has completed multiple trials as a non-antibiotic feed additive that successfully optimizes health and productivity in swine and poultry. By enabling the removal of antibiotics from feeds, the OxC-beta™ Livestock product is expected to help reduce the development of antibiotic resistant pathogens that are widely thought to occur as a result of food animal production and can threaten human health.

The health benefits observed in livestock have given rise to one of Avivagen's longer-term goals, which is to access the human supplement, prophylactic or therapeutic markets for OxC-beta™ Technology.

A major milestone for the Corporation was the publication in April 2016 in the American Chemical Society's Journal of Agricultural and Food Chemistry of a peer-reviewed scientific publication "Discovery

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and Characterization of Carotenoid-Oxygen Copolymers in Fruits and Vegetables with Potential Health Benefits". The paper reported the important discovery that counterparts of fully oxidized beta carotene ("OxBC"), containing the bioactive  $\beta$ -carotene-oxygen copolymer component of OxC-beta™ Livestock, occur naturally in a variety of foods at levels that are expected to beneficially affect immune function. This new knowledge is of major importance to the Corporation in gaining regulatory acceptance throughout the world for the use of the Corporation's OxC-beta™ Technology in animals and humans. The discovery also has provided the Corporation with the opportunity to expand its patent portfolio by filing for intellectual property protection for the natural forms and counterparts of OxBC.

The Corporation believes that OxC-beta™ Livestock has the potential to replace antibiotics in its food-animal applications: field trials have established that it helps maintain optimal health and thereby provides similar benefits to in-feed antibiotics. The Corporation is pursuing additional sales of OxC-beta™ Livestock in species such as poultry and swine where data can be rapidly generated and in jurisdictions with high motivation to eliminate the use of antibiotics and/or that have lower regulatory hurdles for products of this nature. In pursuit of such sales, the Corporation has conducted confirmatory trials with major Asian livestock integrators and exploratory trials with qualified universities or research institutes. Identities of some trial collaborators and certain summary trial results have been disclosed in Avivagen's news releases.

For the fiscal year ended October 31, 2018, the Corporation delivered OxC-beta™ Livestock 10% premix for revenues of \$960,894. The orders delivered in 2018 supplemented approximately 300 million kg of UNAHCO, Inc. branded commercial feed, an amount sufficient for about 120 million broiler chickens or 14 million piglets.

In 2017, the Corporation delivered its first industrial-scale orders of OxC-beta™ Livestock to the feed industry. These purchases by UNAHCO, Inc. in the Philippines during the 2017 fiscal year were for 1,100kg of OxC-beta™ Livestock 10% premix at pricing in line with Avivagen's target.

The Corporation believes that the total global animal feed production in Avivagen's target species of poultry, swine and cattle to which OxC-beta™ Livestock could be added exceeds 1 billion tons<sup>1</sup>. Asia, the Corporation's target market for initial commercialization, is the largest single region representing some 35% of total world animal feed consumption.

In all major markets in which the Corporation plans commercial operations there is a regulatory requirement prior to offering OxC-beta™ Livestock for sale. There is very little consistency, other than proof of efficacy and safety, for regulatory filings among countries, which necessitates the Corporation to custom prepare a registration dossier for each market that it wishes to enter. The filing of the registration dossiers could involve various studies and trials, which entail various costs.

The review time before regulators confirm no objection to sale can range from one to several years, depending on the country and registration process required. Due to the uncertain nature, extent and timing of the regulatory process in each country, there is no guarantee that the Corporation can register in all countries within the time frames projected.

Avivagen has, as of the date of this report, received approval for sale of OxC-beta™ Livestock in New Zealand, the Philippines, Taiwan, and Thailand. Registration activity is ongoing in several Asian countries, such as South Korea, China, Vietnam, and Indonesia, as this area of the world has been in the forefront in reducing antibiotic use in food animals and has a high demand for livestock production. A number of these Asian countries export poultry and pork to countries in the European Union, which has a policy of no antibiotics in food animals.

Regulatory approvals in the USA, China, Canada, Australia, and Latin America continue to be priorities for Avivagen. To help guide the Corporation through the regulatory process, several regulatory consultants have been engaged. Consultants have been engaged for the USA, Australian, Mexican, Brazilian, and Canadian markets. The regulatory requirements for OxC-beta™ Livestock in China will be addressed through partnerships with a Chinese company which will be coordinating the submission on behalf of the Corporation. The anticipated approval time for the United States is approximately up to two years and China is approximately two years. Regulatory activities are underway in other markets including Mexico, Brazil and Canada, with a time frame of up to several years.

The timing and cost of regulatory registration can be very significant, and the Corporation anticipates requiring additional funds to support the above regulatory registration process. The Corporation will attempt to supplement the cost from sales in the countries for which it is registered to date, but additional funding by way of equity and or debt may be required.

<sup>1</sup>Alltech 2018 Annual Global Feed Survey, ALLTECH, Nicholasville, Kentucky, USA 40356

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For companion animals, the Corporation has created a branded line of OxC-beta™ Technology product, Vivamune™ Chews, intended to improve or maintain quality of life in companion animals. This product is in a class of non-drug nutritional supplements for the United States, which are regulated by the United States National Animal Supplement Council (NASC).

In October 2017, the Corporation re-launched Vivamune™ Chews with a multifaceted marketing and rebranding campaign designed to increase brand awareness and market share. The redesigned packaging carried the image and endorsement of Cesar Millan, a recognized figure in the field of dog rehabilitation.

In July 2018, the Corporation received regulatory approval for fully oxidized beta carotene, which will allow marketing and selling in Canada of Vivamune and other companion animals products containing OxC-beta™ Technology.

### **Liquidity, Capital Resources, Outlook, and Going Concern**

The Corporation is an early-revenue stage corporation and accordingly has not generated significant revenue from its principal products. The Corporation has incurred significant accumulated deficit to date of \$(26,395,727) (October 31, 2017: \$(22,454,145)). The ability of the Corporation to continue operations is dependent upon obtaining sufficient funding to sustain operations through the early-revenue stage, successfully bring technologies to market and achieve profitable operations. The Corporation manages its capital, which consists of cash provided from financing, long-term debt, and ACOA research and development repayable funding, with the primary objective being safeguarding sufficient working capital to sustain operations. The Board of Directors has not established capital benchmarks or other targets.

As at October 31, 2018, the Corporation had cash and cash equivalents of \$2,207,393 (October 31, 2017: \$1,600,137).

The Corporation will need to obtain additional financial resources through revenues, operations, additional equity and/or debt financing or by selling products or licensing technology for cash proceeds.

The Corporation may raise capital through the issuance of additional equity or debt financing. The Corporation's short-term plans are dependent on its ability to access funding to continue operations and development of the principal products. If the Corporation is unable to obtain funding through the issuance of common shares, warrants or stock options exercised, issuance of debt, proceeds from product sales or a licensing arrangement in a timely manner, then these programs and operations in general could be delayed or cease altogether. The Corporation will pursue additional funding to offset portions of the selling, general, and administration cost, and research costs. The Corporation expects expenditures for regulatory approvals (including research expenditures on trials and efficacy studies in support of registration) to continue or increase for the foreseeable future. As the Corporation moves further into the commercialization and revenue phase, these registration and research expenditures may ultimately begin to decrease.

Continued uncertainty in the financial and business markets may impact the Corporation's ability to raise additional financing proceeds and it may impact the terms and conditions related to any financing.

The Corporation's ultimate success depends on its ability to bring technology and resulting products to market. Regulation by government is a significant factor in the registration, research, development, manufacture, and marketing of the Corporation's products.

Most of the Corporation's OxC-beta™ Technology applications require regulatory approval before they can be commercialized. Animal feed products, such as OxC-beta™ Livestock, can take many years to receive regulatory approvals in many countries and face a significant degree of uncertainty of receiving approval and subsequent market success. With New Zealand, Taiwan, Thailand, and the Philippines approved for distribution as of the date of this report, the Corporation is actively working to gain approval in other Asian jurisdictions such as South Korea, China, Vietnam, and Indonesia. In concert with this strategy, the Corporation recently retained consultants whose primary focus is to help expedite the approval process within the United States, Canada, Australia, Mexico, and Brazil. Other applications for OxC-beta™ Technology, such as pet supplements, may require less data for regulatory approval but need marketing resources and an effective marketing campaign to attain commercial success.

Given the uncertainty, extensive time, and financial expenditures involved in moving the products based on OxC-beta™ Technology through the regulatory process from development to market, the Corporation may never be able to successfully develop commercially-viable products. If the Corporation is unable to do so, its business, financial condition, and results of operations would be materially adversely affected. At this time, while the Corporation has demonstrated its ability to raise equity capital and long-term debt, there can be no assurance that further financing would be available to the Corporation when needed, on

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commercially reasonable terms, or at all. In the absence of an ability to raise sufficient additional funds there is significant doubt regarding the Corporation's ability to continue. In addition, any equity financing will involve substantial dilution to the Corporation's existing shareholders.

The Corporation has not obtained profitable operations to date. For the twelve-month period ended October 31, 2018, the Corporation had a net loss from all operations of \$(4,834,059) (October 31, 2017: \$(5,135,661)). Whether and when the Corporation can attain profitability and positive cash flow is uncertain. The accumulated deficit is \$(26,395,727) as of October 31, 2018 (October 31, 2017: \$(22,454,145)). These circumstances cast significant doubt as to the ability of the Corporation to meet its obligations as they come due, and accordingly, the ultimate appropriateness of the use of accounting principles applicable to a going concern. Management is actively pursuing the commercialization of its products and is continuously evaluating the availability of additional debt or equity financing to provide adequate cash resources to carry out its business objectives, and was successful in raising additional equity and debt financing in the current fiscal year. Nevertheless, there is no assurance that these ongoing initiatives will continue to be successful.

The Corporation's ability to continue as a going concern is dependent upon the Corporation's ability to obtain the ongoing support of its lenders and investors, obtain profitable operations, generate significant sales and/or raise additional capital. These financial statements do not reflect adjustments in the carrying values of assets and liabilities, the reported revenues and expenses, and the balance sheet classifications used that would be necessary if the Corporation were unable to realize its assets and settle its liabilities as a going concern in the normal course of operations. Such adjustments could be material.

### **Financial Position of the Corporation** **Selected Balance Sheet Data**

	<b>As at</b>	<b>As at</b>
	<b>October 31, 2018</b>	<b>October 31, 2017</b>
Cash and cash equivalents	\$ 2,207,393	\$ 1,600,137
Total assets	\$ 3,109,230	\$ 1,849,687
Non-current portion of Atlantic Canada Opportunities Agency long-term liabilities	\$ 238,152	\$ 158,530
Non-current portion of long-term debt	\$ 1,767,312	\$ 918,438
Total liabilities	\$ 3,015,451	\$ 1,680,901
Total shareholders' equity	\$ 93,779	\$ 168,786

### **Atlantic Canada Opportunities Agency Agreements**

The Corporation entered into two agreements to obtain repayable funding from the Atlantic Canada Opportunities Agency ("ACOA"). Under the first agreement, which was dated August 15, 2006, the Corporation drew \$2,052,131 of which \$19,951 was repaid for a remaining obligation of \$2,032,180. Under the second agreement, which was dated March 24, 2010, the Corporation drew \$1,334,400 of which \$22,568 was repaid for a remaining obligation of \$1,311,832.

The ACOA loans were initially recognized at their fair value, and are subsequently carried at amortized cost as determined by using a discounted cash flow analysis, which requires a number of assumptions. The significant assumptions used in determining the fair value using discounted cash flows include estimating the amount and timing of future revenue for the Corporation and the discount rate. As the loans are repayable based on a percentage of gross revenue, the determination of the amount and timing of future revenue significantly impacts the initial fair value of the loan, as well as the carrying value of the loans at each reporting date. Management recalculates the carrying amount by computing the present value of the estimated future cash flows at the original effective interest rate of 35%. Any adjustments are recognized in the consolidated statement of comprehensive loss as accreted interest after initial recognition. For the year ended October 31, 2018, the adjustment to the ACOA repayable funding liability was an increase of \$114,151, with a corresponding expense recognized in finance cost on the statement of comprehensive loss.

The Corporation commenced repayment on June 30, 2014. Yearly repayments are capped at 10% of product revenues of the prior year from the resulting product. The next ACOA repayment is currently recorded as \$107,257 based on OxC-beta product sales of \$1,072,572 in the twelve-month period ended October 31, 2018 and is due on 30 June 2019.

### **Bloom Burton Healthcare Lending Trust Credit Facility**

On October 30, 2015, the Corporation entered into an agreement with the Bloom Burton Healthcare Lending Trust (the Trust) for a secured drawdown credit facility of up to \$1.8 million. Amounts drawn on

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the credit facility accrue interest at 12% annually, with 7% repayable each calendar quarter and the remaining 5% accruing to be repaid at maturity. The facility matures November 13, 2019, at which time the full principal including all accrued interest becomes payable. The Corporation may prepay amounts outstanding under the facility before the maturity date, however the Corporation must pay an additional 2% of any principal amount prepaid before November 13, 2019.

In consideration for the credit facility, the Trust has been issued warrants to purchase common shares of the Corporation. Such warrants vested and became exercisable in amounts proportionate to the amount of the facility which was drawn down. 500,000 warrants vested as the credit facility was drawn down at an exercise price of \$1.10. The warrants will remain exercisable up to the maturity date subject to potential acceleration under TSX Venture Exchange (TSX.V) policies in the event of repayment prior to the maturity.

On November 13, 2015, the Corporation drew \$1,000,000 and vested 277,778 warrants. On May 17, 2018, the Corporation drew the remaining \$800,000 from the facility and vested the remaining 222,222 warrants. Under IAS 32 *Financial Instruments*, an entity is required to separate a financial instrument that contains a financial liability and an equity component using the residual method. The warrants are considered to be an equity component and the credit facility is considered a financial liability. Therefore, the financial liability is measured at the discount rate that a market participant would require without the equity component. The discount rate was determined to be 16%. Accordingly, when the credit facility was drawn, the financial liability was recorded at its discounted value of 16% with the difference, being the warrants, accounted for as an equity transaction.

Initial recognition of the facility was at its fair value at a discount rate of 16%. Subsequent recognition will use the effective interest method. Transaction and legal costs associated with the facility in the amount of \$99,023 have been recorded to equity and long-term debt on a pro-rata basis. The liability's transaction costs will be expensed using the effective interest method up to the maturity date of the facility.

The future undiscounted repayments per fiscal year on the loan with future accrued interest is as follows:

2019	\$	140,151
2020	\$	2,119,265
<b>Total</b>	<b>\$</b>	<b><u>2,259,416</u></b>

### **Obligations**

In addition to the ACOA and Trust loans, the Corporation's major outstanding obligations include accounts payable and accrued liabilities of \$762,579 which are due within the current period, and mostly within 30 days.

The Corporation is committed under agreements for the rental of office space at a monthly rate of \$11,486 for the 2018 fiscal year and increases in future periods. The agreements will expire on March 31, 2020. The leases may be terminated by either party with nine months' notice. This operating lease, as the lessee, requires rental payments over the life of the lease as follows (undiscounted value per fiscal year):

2019	\$	139,316
2020	\$	58,489
<b>Total</b>	<b>\$</b>	<b><u>197,805</u></b>

On July 24, 2018, the Corporation entered into an agreement to wind up the China JV. Upon the completion of the wind-up, the Corporation will issue up to 500,000 common shares of the Corporation at \$0.60 per share as reimbursement to the JV partner for expenses incurred to date. The termination agreement also provides for issue of additional common shares of the Corporation with a value of \$350,000 contingent on certain conditions being met. The Corporation will enter into a future consulting agreement with a former director of the China JV to provide business advice in the China market. Under the terms of the agreement, subject to TSX.V approval, the consultant will be issued common shares of the Corporation equal in value to \$50,000 per year, valued at the closing share price on the date of each anniversary of the execution of the agreement.

The Corporation has recorded \$250,000 as an estimate of the expenses to be reimbursed, representing 416,667 common shares to be issued in the future at \$0.60 per common share. The issue of such reserve for common shares is conditional on the successful winding up of the joint venture in accordance with the termination agreement. Should the joint venture not be successfully wound up, the Corporation will reverse the \$250,000 expense and the 416,667 reserve for common shares from equity.

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**Summary of Quarterly Results from Continuing Operations**

	Three Months Ended with year-to-date (YTD)				
	October 31 2018	July 31 2018	April 30 2018	January 31 2018	YTD Total 2018
Total Revenue from continuing operations	\$346,284	\$364,213	\$218,879	\$143,196	\$1,072,572
Total Comprehensive Loss from continuing operations	\$(1,541,137)	\$(1,031,779)	\$(1,019,555)	\$(1,241,588)	\$(4,834,059)
Net Loss per Share (Basic and Diluted) from continuing operations	\$(0.05)	\$(0.03)	\$(0.03)	\$(0.04)	\$(0.15)

	Three Months Ended with year-to-date (YTD)				
	October 31 2017	July 31 2017	April 30 2017	January 31 2017	YTD Total 2017
Total Revenue from continuing operations	\$65,633	\$144,217	\$5,529	\$40,281	\$255,660
Total Comprehensive Loss from continuing operations	\$(1,338,603)	\$(1,250,567)	\$(1,441,584)	\$(1,014,891)	\$(5,045,645)
Net Loss per Share (Basic and Diluted) from continuing operations	\$(0.04)	\$(0.04)	\$(0.05)	\$(0.04)	\$(0.17)

**Selected Financial Information from Continuing Operations**

	Years ended	
	October 31, 2018	October 31, 2017
Revenue	\$ 1,072,572	\$ 255,660
Operating expenses <sup>1</sup>	\$ 5,487,796	\$ 5,218,123
Total loss	\$ (4,834,059)	\$ (5,045,645)
Basic and diluted loss per share	\$ (0.15)	\$ (0.17)

Note 1: Operating expenses include selling, general, and administration expenses; research expenses; depreciation; and net finance cost as disclosed in the statement of comprehensive loss.

**Results of Continuing Operations**

**12 months ended October 31, 2018 compared to 12 months ended October 31, 2017**

	12 months ended October 31, 2018	12 months ended October 31, 2017	Variance
<b>Continuing operations</b>			
Revenues	\$ 1,072,572	\$ 255,660	\$ 816,912
Cost of products sold	418,835	83,182	(335,653)
<b>Gross margin</b>	<b>653,737</b>	<b>172,478</b>	<b>481,259</b>
Selling, general and administration	4,265,175	4,159,446	(105,729)
Research	534,981	825,185	290,204
Depreciation of equipment	2,540	-	(2,540)
Finance cost	435,100	233,492	(201,608)
Joint venture termination	250,000	-	(250,000)
<b>Total expenses</b>	<b>5,487,796</b>	<b>5,218,123</b>	<b>(269,673)</b>
<b>Loss before income taxes from continuing operations</b>	<b>(4,834,059)</b>	<b>(5,045,645)</b>	<b>211,586</b>
<b>Income Taxes</b>			
Current and deferred income tax expense	-	-	-
<b>Total comprehensive loss for the period from continuing operations</b>	<b>(4,834,059)</b>	<b>(5,045,645)</b>	<b>211,586</b>
<b>Total comprehensive loss for the period from discontinued operations</b>	<b>-</b>	<b>(90,016)</b>	<b>90,016</b>
<b>Total comprehensive loss for the period from continuing and discontinued operations</b>	<b>\$ (4,834,059)</b>	<b>\$ (5,135,661)</b>	<b>\$ 301,602</b>

Revenue from continuing operations for the 12-month period ended October 31, 2018 totaled \$1,072,572 compared to \$255,660 for the 12-month period ended October 31, 2017. The difference of \$816,912 is due mainly to sales of OxC-beta™ Technology product to a single customer.

Expenses from continuing operations for the 12-month period ended October 31, 2018 totaled \$5,487,796 compared to \$5,218,123 for the 12-month period ended October 31, 2017. The difference of \$(269,673) is due mainly an increase in expenses related to product registration and share-based payments offset by refundable Scientific Research and Experimental Development (SRED) tax credits and a decrease in research expenses related to product trials.

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Comprehensive loss from continuing operations for the 12-month period ended October 31, 2018 totaled \$(4,834,059) compared to a comprehensive loss of \$(5,045,645) for the 12-month period ended October 31, 2017. The difference of \$(211,586) is due mainly to increased sales of OxC-beta™ Technology sales to a single customer offset by increased expenses related to registration costs and share-based payments.

The following details the nature of expenses for the 12-month periods ended October 31, 2018 and 2017:

<b><i>For the years ended</i></b>	<b>October 31 2018</b>	<b>October 31 2017</b>
<b>Selling, general, and administrative</b>		
Salary, wages, and benefits	\$ 973,178	\$ 1,271,114
Professional fees and other	2,532,943	2,356,511
Board fees	183,074	223,654
Share-based payment	575,980	308,167
<b>Total selling, general, and administrative</b>	<b>\$ 4,265,175</b>	<b>\$ 4,159,446</b>
 <b>Research</b>		
Salary, wages, and benefits	\$ 444,787	\$ 419,556
Professional fees and other	264,306	405,629
Government grants – SRED	(174,112)	Nil
<b>Total research</b>	<b>\$ 534,981</b>	<b>\$ 825,185</b>

Selling, general and administration expenses, as noted in the table above, were \$4,265,175 for the 12-month period ended October 31, 2018, compared to \$4,159,446 for the 12-month period ended October 31, 2017.

Expenses for the 12-month period ended October 31, 2018 were \$105,729 higher due to an increase in share-based payment expenses and an increase in expenses related to product registration offset by decreased expenses related to legal and patent filings.

Board fees paid in the 12-month period ended October 31, 2018 were \$183,074 compared to \$223,654 for the same period in the prior year due to the departure of a member of the Board of Directors. Share-based payments for the 12-month period ended October 31, 2018 were \$575,980 compared to \$308,167 for the same period in the prior year.

Selling, general, and administrative expenses of \$4,265,175 consist mainly of professional fees and salary and wages in support of the business development and registration expenses noted above.

Research expenses were \$534,891 for the 12-month period ended October 31, 2018 compared to \$825,185 for the 12-month period ended October 31, 2017. Research expenses were \$290,204 lower due mainly to reduced expenses related to Corporation-sponsored product trials and refundable SRED tax credits.

Finance cost for the years ended October 31, 2018 and October 31, 2017 consists of the following:

	<b>October 31 2018</b>	<b>October 31 2017</b>
Interest accretion on research and development repayable funding	\$ 72,728	\$ 53,919
Adjustment to present value of research and development repayable funding	\$ 114,151	\$ Nil
Interest accretion on long-term debt	\$ 226,448	\$ 157,801
Amortization of transaction costs on long-term debt	\$ 21,773	\$ 21,772
<b>Total finance cost</b>	<b>\$ 435,100</b>	<b>\$ 233,492</b>

Finance cost for the year ended October 31, 2018 was increased by \$201,608. This is due mainly to an increase in the interest expense on the long-term debt resulting from the \$800,000 drawdown as well as a \$114,151 adjustment on the present value of the ACOA loans.

**SUMMARY FINANCIAL INFORMATION AND MANAGEMENT'S DISCUSSION AND ANALYSIS OF  
FINANCIAL CONDITION AND RESULTS OF OPERATIONS**

**Comparison of Cash Flows**

	October 31, 2018	October 31, 2017
<b>Cash Flows from (used in) Operating Activities</b>		
Loss from continuing operations	\$ (4,834,059)	\$ (5,045,645)
Loss from discontinued operations	\$ -	\$ (90,016)
Items not affecting cash and non-cash adjustments:		
Depreciation on equipment	\$ 2,540	\$ -
Share-based compensation	\$ 575,980	\$ 308,167
Finance cost	\$ 435,100	\$ 233,492
Common shares reserved for issuance	\$ 250,000	\$ -
Net effect of foreign exchange rates on cash	\$ (2,402)	\$ (2,916)
Changes in non-cash operating working capital items:		
Trade and other accounts receivable	\$ (127,929)	\$ (58,270)
Prepaid expenses	\$ 31,223	\$ (49,570)
Inventories	\$ (488,582)	\$ (87,916)
Accounts payable and accrued liabilities	\$ 262,377	\$ 19,931
Shares issued in settlement of accounts payable	\$ 86,355	\$ -
<b>Cash Flows used in Operating Activities</b>	<b>(3,809,397)</b>	<b>(4,772,743)</b>
<b>Cash Flows used in Investing Activities</b>		
Purchase of equipment	\$ (69,539)	\$ -
<b>Cash Flows used in Investing Activities</b>	<b>(69,539)</b>	<b>-</b>
<b>Cash Flows from (used in) Financing Activities</b>		
Proceeds from issuance of private placement units	\$ 4,058,500	\$ -
Share issuance cost	\$ (400,155)	\$ -
Repayment of research and development repayable funding	\$ (25,566)	\$ (995)
Repayment of long-term debt	\$ (91,566)	\$ (127,793)
Proceeds from long-term debt	\$ 754,205	\$ -
Proceeds from warrants issued with long-term debt	\$ 45,795	\$ -
Proceeds from the exercise of share purchase warrants	\$ 142,577	\$ 1,348,233
Proceeds from the exercise of stock options	\$ -	\$ 8,118
<b>Cash Flows from Financing Activities</b>	<b>4,483,790</b>	<b>1,227,563</b>
<b>Increase (decrease) in cash and cash equivalents during the year</b>	<b>\$ 604,854</b>	<b>\$ (3,545,180)</b>
Net effect of exchange rate changes on cash and cash equivalents	\$ 2,402	\$ 2,916
Cash and cash equivalents, beginning of year	\$ 1,600,137	\$ 5,142,401
<b>Cash and cash equivalents, end of year</b>	<b>2,207,393</b>	<b>1,600,137</b>

For the 12-month period ended October 31, 2018, the net increase in cash of \$604,854 is the result of \$3,809,397 used in operating activities, consisting mainly of \$4,834,059 in losses from continuing operations, offset by \$(236,556) in changes in working capital. Investing activities consist of the purchase of new laboratory equipment for \$69,539. Cash inflows from financing activities were \$4,483,790, consisting of \$4,058,500 in cash proceeds from a private placement, \$142,577 in cash proceeds from the exercise of warrants, and \$800,000 in proceeds from the drawdown on long-term which was allocated \$754,205 to the debt and \$45,795 to the warrants, offset by \$91,566 in interest repaid on the Corporation's long-term credit facility, \$25,566 in repayment of the research and development repayable funding, and \$400,155 in share issue costs.

For the 12-month period ended 31 October 2017, the net decrease in cash of \$3,545,180 relates mainly to \$4,772,743 used in operating activities, consisting mainly of \$5,045,645 in losses from continuing operations, \$90,016 in losses from discontinued operations, and \$175,825 in changes in working capital. Cash inflows from financing activities were \$1,227,563, consisting of \$1,348,233 in cash proceeds from the exercise of warrants and options offset by \$127,793 in interest repaid on the Corporation's long-term credit facility and \$995 in principal repaid on the ACOA loan. There were no investing activities in the reporting period.

The Corporation may continue efforts to raise funds by way of generating revenues and/or through the issuance of debt, warrants, and/or common shares. As of October 31, 2018, the Corporation has issued 33,565,128 common shares and 416,667 common shares reserved for future issue and has 6,751,059 total warrants outstanding. The Corporation has also granted 2,063,729 stock options and 60,000 stock appreciation rights.

## SUMMARY FINANCIAL INFORMATION AND MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Share-based compensation for the 12-month period ended October 31, 2018 was \$575,980 compared to \$308,167 for the 12-month period ended October 31, 2017.

### **Shareholders' Equity**

The authorized share capital of the Corporation consists of unlimited voting common shares.

On November 30, 2017, the Corporation completed a brokered and non-brokered private placement of 4,058,500 units for gross proceeds of \$4,058,500. Each unit consisted of one common share and one half common share purchase warrant for a unit price of \$1.00. Each whole warrant entitles the holder to acquire one common share of the Corporation at a purchase price of \$1.20 for three years. Related parties participated in the financing in the amount of \$510,000.

Based on the gross proceeds of \$4,058,500, the relative fair value of the common shares was \$3,202,305 and the investor warrants were assigned a relative fair value of \$856,195. The Corporation paid agent fees in connection with the transaction in the amount of \$286,330 and issued 283,080 agent warrants. These were based on a payment of 8% of the brokered proceeds. The agent warrants were assigned a fair value of \$154,278 based on a Black-Scholes calculation with the assumptions indicated below. Each agent warrant entitles the finder to purchase one common share of the Corporation for three years at \$1.00. Legal transaction fees for the private placement were \$93,387. TSX.V and other filing fees were \$20,438.

The Black-Scholes calculation was based on the following assumptions: a stock price of \$0.95; exercise price for investor warrants \$1.20, for finder warrants \$1.00; time to maturity of 3 years; annual risk-free interest rate of 1.48% based on Bank of Canada 3-year benchmark bond yield; and historical 3-year stock volatility of 92%.

### **Summary of Outstanding Shares and Dilutive Instruments**

As of October 31, 2018 and January 30, 2019, the Corporation had 33,565,128 common shares outstanding. As of October 31, 2018 and January 30, 2019, the Corporation had outstanding 5,967,979 investor warrants, 283,080 agent warrants, and 500,000 long-term debt warrants for a total of 6,751,059 warrants issued.

#### ***As at October 31, 2018***

Date of Issue	Subscriber Warrants	Agent Warrants	Long-term Debt Warrants	Term (Years)	Date of Expiry	Exercise Price
16-Dec-2014	1,163,738			4.1	31-Jan-2019 <sup>1</sup>	\$ 1.00
30-Oct-2015			500,000	4	13-Nov-2020	\$ 1.10
1-Jun-2016	2,774,991			2.7	31-Jan-2019 <sup>1</sup>	\$ 0.90
30-Nov-2017	2,029,250			3	30-Nov-2020	\$ 1.20
30-Nov-2017		283,080		3	30-Nov-2020	\$ 1.00
	<b>5,967,979</b>	<b>283,080</b>	<b>500,000</b>			

Note 1: On September 13, 2018, 1,163,738 subscriber warrants and 2,774,991 subscriber warrants with an expiry date of October 1, 2018 were approved by the TSX.V to be extended to January 31, 2019. These subscriber warrants were previously extended from an expiry date of June 30, 2018.

The Corporation adopted a stock option plan ("Plan") on August 4, 2005. The Plan is administered by the Board of Directors of the Corporation who establish exercise prices, at not less than market price at the date of grant, and vesting periods, which to date have been set between one day and three years. Options under the Plan remain exercisable for five years from the date of grant. The option pool was amended on February 26, 2018. As a result, the maximum number of common shares reserved for issuance for options that may be granted under the Plan is 3,321,955.

As at October 31, 2018, the Corporation had 2,063,729 options outstanding, of which 1,385,653 are vested and exercisable. As at January 30, 2019, the Corporation had 2,050,500 options outstanding, of which 1,519,695 are vested and exercisable.

On May 20, 2014, the Corporation issued 60,000 SARs to the Chairman of the Board of Directors with an exercise price of \$0.70. They expire on May 20, 2019. All SARs issued are fully vested and are redeemable into cash or common shares at the option of the Corporation.

### **Other Critical Accounting Estimates**

The preparation of the financial statements requires management to make judgments, estimates, and assumptions that affect the reported amounts of revenues, expenses, assets, and liabilities, and the disclosures of contingent assets and liabilities, at the end of the reporting periods. However, uncertainty about these assumptions and estimates could result in outcomes that require a material adjustment to the

## SUMMARY FINANCIAL INFORMATION AND MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

carrying amount of the asset or liability affected in future periods. In the process of applying the Corporation's accounting policies, management has made the following judgments, which have the most significant effects on the amounts recognized in the financial statements.

### **Carrying amount of ACOA research and development repayable funding (ACOA loan)**

The significant assumptions used in determining the discounted cash flows include estimating the amount and timing of future revenue for the Corporation and the discount rate. As the ACOA loans are repayable based on a percentage of gross revenue, the determination of the amount and timing of future revenue significantly impacts the initial fair value of the loan, as well as the carrying value of the loans at each reporting date. The Corporation is in the commercialization and early-revenue stages for its products; accordingly, determination of the amount and timing of revenue requires significant judgment by management. Management's estimate of future revenues assumes some revenue growth in the near future. Adjusting for the revenue growth resulted in an increase to the ACOA liability of \$114,151 and a corresponding charge to finance cost for the year ended October 31, 2018. The discount rate determined on initial recognition of the loans is used to determine the present value of estimated future cash flows expected to be required to settle the debt. In determining the appropriate discount rates, the Corporation considered the interest rates of similar long-term debt arrangements, with similar terms. The loans are repayable based on a percentage of gross revenue, accordingly finding financing arrangements with similar terms is difficult and management was required to use significant judgment in determining the appropriate discount rates. Management used a discount rate of 35% to discount the loans.

### **Share-based payments and warrants**

Share-based payments and warrants are estimated using a Black-Scholes pricing model. This model requires management estimates and assumptions on the life of the instrument and the volatility.

### **Future accounting pronouncements - Standards issued but not yet effective**

As at the date the Corporation's Board of Directors approved the financial statements, certain new standards, amendments, and interpretations to existing IFRS standards have been published but are not yet effective and have not been adopted by the Corporation and in certain cases have been early-adopted.

The International Accounting Standards Board issued on January 13, 2016 a new accounting standard called IFRS 16 *Leases*. IFRS 16 *Leases* replaces IAS 17 *Leases*. IFRS 16 *Leases* requires all leases to be reported on an entity's statement of financial position as assets and liabilities. IFRS 16 *Leases* is effective January 1, 2019. The Corporation has assessed and determined that there will be no impact to the financial statements when adopted on November 1, 2019. As at November 1, 2019, the Corporation will have five months remaining on its only lease contract. The Corporation will adopt the modified retrospective approach and elect the short-term lease exemption. Therefore, no asset or liability will be recognized as at November 1, 2019 unless the Corporation renews the lease before November 1, 2019.

All other new standards, amendments, and annual improvements were early adopted or were not relevant.

### **Board and Management Compensation**

For the fiscal year 2018, the Board of Directors was compensated as follows: an annual retainer of \$70,000 for the Chairman of the Board of Directors, and an annual retainer of \$35,000 for each non-management member of the Board. Additional annual retainers were as follows: \$12,000 for the chair of the Audit Committee, \$10,000 for the Chair of the Governance and Compensation Committee, and \$5,000 for each committee member paid on a per-committee basis. The Chairman of the Board did not receive any additional retainers. The Lead Director also received an additional \$25,000 per year.

During the 12-month period ended October 31, 2018, the Corporation's Officers and Directors earned the following compensation for their service as Officers and Directors (no amounts were unpaid):

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***Compensation and share-based payments for the 12-months ended October 31, 2018***

**Officers and Directors**

Kym Anthony, Interim CEO, Director, and Chairman of the Board	\$	430,903
Chris Boland, Chief Financial Officer	\$	207,509
Graham Burton, Chief Scientific Officer	\$	164,066
Aubrey Dan, Director and Chair of Gov. and Comp. <sup>1</sup>	\$	96,069
Janusz Daroszewski, Director Product Development and QA	\$	128,797
Vanessa Grant, Director <sup>2</sup>	\$	31,608
Dave Hankinson, Executive Director	\$	130,275
Jeffrey Kraws, Director	\$	86,028
Paul Mesburis, Lead Director and Chair of Audit Committee	\$	121,536
James Nickerson, Director of Product Development	\$	110,433
<b>Total</b>	<b>\$</b>	<b>1,507,224</b>

Note 1: Mr. Dan joined the Board of Directors on November 22, 2017 and was appointed Chair of the Corporate Governance and Compensation Committee at the Corporation's Annual General Meeting of Shareholders on April 10, 2018.

Note 2: Ms. Grant did not run for re-election at the Corporation's Annual General Meeting of Shareholders and is no longer a member of the Board of Directors effective April 10, 2018.

**Events after the Reporting Period of October 31, 2018**

On January 17, 2019, the Corporation received approval from the TSX Venture Exchange to extend the expiry date of 1,163,738 subscriber warrants and 2,774,991 subscriber warrants from January 31, 2019 to October 30, 2019. These subscriber warrants were previously extended from an expiry date of June 30, 2018.

Additional information relating to the Corporation may be found at [www.sedar.com](http://www.sedar.com)