

ONCOLYTICS BIOTECH INC
Form 20-F
March 15, 2019

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 20-F

REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For fiscal year ended
December 31, 2018

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from ____ to ____

OR

SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Date of event requiring this shell company report:

Commission file number: 001-38512
ONCOLYTICS BIOTECH INC.

(Exact name of Registrant as specified in its charter)

Province of Alberta, Canada

(Jurisdiction of incorporation or organization)

Suite 210, 1167 Kensington Crescent, N.W. Calgary, Alberta, T2N 1X7

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(Address of principal executive offices)

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Tel: (403) 670-7377
E-mail: info@oncolytics.ca

(Name, Telephone, E-mail and/or Facsimile number and Address of Company Contact Person)

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of each exchange on which registered
Common Shares, no par value	Nasdaq Capital Market

Securities registered pursuant to Section 12(g) of the Act: None

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act: None

Indicate the number of outstanding shares of each of the Registrant's classes of capital or common stock as of the close of the period covered by the annual report: 17,399,749 common shares as at December 31, 2018

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes No

If this report is an annual or transition report, indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. Yes No

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes
No

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or an emerging growth company. See definition of "large accelerated filer," "accelerated filer," and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one)

Large accelerated filer Accelerated filer Non-accelerated filer
Emerging growth company

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards[†] provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

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US GAAP	International Financial Reporting Standards as issued by the International Accounting Standards Board	Other
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow:

Item 17 Item 18

If this is an annual report, indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

ONCOLYTICS BIOTECH INC.

FORM 20-F

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

All references in this annual report on Form 20-F to the terms “we”, “our”, “us”, “the Company” and “Oncolytics” refer to Oncolytics Biotech Inc.

Certain statements in this annual report on Form 20-F and the documents attached as exhibits to this annual report, constitute “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995, as amended. Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of Oncolytics Biotech Inc., or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Forward-looking statements are statements that are not historical facts, and include, but are not limited to, estimates and their underlying assumptions; statements regarding plans, objectives and expectations with respect to the efficacy of our technologies; the timing and results of clinical studies related to our technologies; future operations, products and services; the impact of regulatory initiatives on our operations; the size of and opportunities related to the markets for our technologies; general industry and macroeconomic growth rates; expectations related to possible joint and/or strategic ventures and statements regarding future performance. Forward-looking statements generally, but not always, are identified by the words “expects,” “anticipates,” “believes,” “intends,” “estimates,” “projects”, “potential”, “possible” and similar expressions, or that events or conditions “will,” “may,” “should” occur.

The forward-looking statements in this annual report are subject to various risks and uncertainties, most of which are difficult to predict and generally beyond our control, including without limitation:

- risks related to all of our products, including pelareorep, being in the research and development stage and requiring further development and testing before they can be marketed commercially;

- risks inherent in pharmaceutical research and development;

- risks related to timing and possible delays in our clinical trials;

- risks related to some of our clinical trials being conducted in, and subject to the laws of foreign countries;

- risks related to our pharmaceutical products being subject to intense regulatory approval processes in the United States and other foreign jurisdictions;

- risks related to being subject to government manufacturing and testing regulations;

- risks related to the extremely competitive biotechnology industry and our competition with larger companies with greater resources;

- risks related to our reliance on patents and proprietary rights to protect our technology;

- risks related to potential products liability claims;

- risks related to our limited manufacturing experience and reliance on third parties to commercially manufacture our products, if and when developed;

- risks related to our new products not being accepted by the medical community or consumers;

• risks related to our technologies becoming obsolete;

• risks related to our dependence on third party relationships for research and clinical trials;

• risks related to our license, development, supply and distribution agreement (the “Licensing Agreement”) with Adlai Nortye Biopharma Co. Ltd. (“Adlai”);

• risks related to our lack of operating revenues and history of losses;

- uncertainty regarding our ability to obtain third-party reimbursement for the costs of our product;

• risks related to other third-party arrangements;

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- risks related to our ability to obtain additional financing to fund future research and development of our products and to meet ongoing capital requirements;
- risks related to potential increases in the cost of director and officer liability insurance;
- risks related to our dependence on key employees and collaborators;
- risks related to Barbados law;
- risks related to the effect of changes in the law on our corporate structure;
- risks related to expenses in foreign currencies and our exposure to foreign currency exchange rate fluctuations;
- risks related to our compliance with the Sarbanes-Oxley Act of 2002, as amended;
- risks related to our status as a foreign private issuer;
- risk related to possible “passive foreign investment company” status;
- risks related to fluctuations in interest rates;
- risks related to information technology systems; and
- risks related to our common shares.

This list is not exhaustive of the factors that may affect any of the Company’s forward-looking statements. Some of the important risks and uncertainties that could affect forward-looking statements are described further under the section heading “Item 3. Key Information – D. Risk Factors” below. If one or more of these risks or uncertainties materializes, or if underlying assumptions prove incorrect, our actual results may vary materially from those expected, estimated or projected. Forward-looking statements in this document are not a prediction of future events or circumstances, and those future events or circumstances may not occur. Given these uncertainties, users of the information included herein, including investors and prospective investors are cautioned not to place undue reliance on such forward-looking statements. Investors should consult our quarterly and annual filings with the Canadian and US securities commissions for additional information on risks and uncertainties relating to forward-looking statements. We do not assume responsibility for the accuracy and completeness of these statements.

Forward-looking statements are based on our beliefs, opinions and expectations at the time they are made, and we do not assume any obligation to update our forward-looking statements if those beliefs, opinions, or expectations, or other circumstances, should change, except as required by applicable law.

CURRENCY AND EXCHANGE RATES

Canadian Dollars Per US Dollar

The following table sets out the exchange rates for United States dollars (“US\$”) expressed in terms of Canadian dollars (“Cdn\$”) including the average exchange rates (based on the average of the exchange rates on the last day of each month in such periods) and the range of high and low exchange rates for such periods.

	Canadian Dollars Per One US Dollar					
	2018	2017	2016	2015	2014	
Average for the period	1.2957	1.2986	1.3248	1.2787	1.1045	
For the Month of	February	January	December	November	October	September
	2019	2019	2018	2018	2018	2018
High for the period	1.3298	1.3600	1.3642	1.3302	1.3142	1.3188
Low for the period	1.3095	1.3144	1.3191	1.3088	1.2803	1.2905

Exchange rates are based on the Bank of Canada average daily exchange rates (prior to April 2017, rates were based on the Bank of Canada nominal noon exchange rates). The average daily exchange rate on March 12, 2019 as reported by the Bank of Canada for the conversion of United States dollars into Canadian dollars was US\$1.00 = Cdn\$1.3378. Unless otherwise indicated, in this annual report on Form 20-F, all references herein are to Canadian Dollars.

PART I

ITEM 1. IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISERS

Not Applicable

ITEM 2. OFFER STATISTICS AND EXPECTED TIMETABLE

Not Applicable

ITEM 3. KEY INFORMATION

A. Selected Financial Data

The selected financial data presented below for the five years ended December 31, 2018 is presented in Canadian dollars and is derived from our consolidated financial statements in Canadian dollars and in accordance with International Financial Reporting Standards (“IFRS”) as issued by the International Accounting Standards Board (“IASB”). The information set forth below should be read in conjunction with our consolidated financial statements (including notes thereto) included under Item 18 and "Operating and Financial Review and Prospects" included under Item 5. For exchange rate data please see the section heading “Currency and Exchange Rates” above.

	2018	2017	2016	2015	2014
	\$	\$	\$	\$	\$
Revenues	—	—	—	—	—
Net loss ⁽²⁾	(17,037,225)	(15,616,851)	(15,139,979)	(13,722,995)	(18,619,335)
Net comprehensive loss	(16,803,451)	(15,797,181)	(15,346,897)	(13,242,060)	(18,418,990)
Basic and diluted loss per share ⁽¹⁾⁽³⁾	(1.06)	(1.12)	(1.20)	(1.16)	(2.01)
Total assets ⁽³⁾	14,865,253	18,150,449	14,758,284	27,383,798	17,193,190
Shareholders' equity ⁽¹⁾⁽³⁾	6,195,363	8,283,846	10,689,620	24,674,306	13,819,193
Cash dividends declared per share ⁽⁴⁾	Nil	Nil	Nil	Nil	Nil
Weighted average number of common shares outstanding ⁽¹⁾	16,016,366	13,936,387	12,618,942	11,854,047	9,249,372

Notes:

- On May 22, 2018, we completed the consolidation of our common shares on the basis of 9.5 pre-consolidation common shares for each one post-consolidation common share (the "Share Consolidation"). Fractional interests were rounded down to the nearest whole number of common shares. Common shares, stock options, restricted share units and performance share units for all periods were similarly adjusted retroactively by the consolidation ratio.
- 1) Included in net loss and net loss per share for the year ended December 31, 2018 are share based payment expenses of \$1,415,833 (2017 - \$578,703; 2016 - \$406,078; 2015 - \$429,537; 2014 - \$980,325).
- 2) The calculation of basic and diluted loss per common share for all periods have been adjusted retroactively for the Share Consolidation. We issued 2,472,909 common shares for net cash proceeds of \$13,299,136 in 2018 (2017 - 20,547,500 pre-consolidation common shares (approximately 2,162,894 post-consolidation common shares) for net cash proceeds of \$12,812,704; 2016 - 3,106,600 pre-consolidation common share (approximately 327,010 post-consolidation) common shares for net cash proceeds of \$956,133; 2015 - 24,639,128 pre-consolidation common shares (approximately 2,593,591 post-consolidation common shares) for net cash proceeds of \$23,667,654; 2014 - 8,708,676 pre-consolidation common shares (approximately 916,702 post-consolidation common shares) for net cash proceeds of \$9,044,492).
- 3) We have not declared or paid any dividends since incorporation.
- 4) We have not declared or paid any dividends since incorporation.

B. Capitalization and Indebtedness

Not Applicable

C. Reasons for the Offer and Use of Proceeds

Not Applicable

D. Risk Factors

Investment in our common shares ("Common Shares") involves a high degree of risk. You should carefully consider, among other matters, the following risk factors in addition to the other information in this Annual Report on Form 20-F when evaluating our business because these risk factors may have a significant impact on our business, financial condition, operating results or cash flow. If any of the material risks described below or in subsequent reports we file with the SEC actually occur, they may materially harm our business, financial condition, operating results or cash flow. Additional risks and uncertainties that we have not yet identified or that we presently consider to be immaterial may also materially harm our business, financial condition, operating results or cash flow.

Research and Development Risks

All of our potential products, including pelareorep, are in the research and development stage and will require further development and testing before they can be marketed commercially.

Prospects for companies in the biotechnology industry generally may be regarded as uncertain given the nature of the industry and, accordingly, investments in biotechnology companies should be regarded as speculative. We are currently in the research and development stage on one product, pelareorep, for human application, the riskiest stage for a company in the biotechnology industry. It is not possible to predict, based upon studies in animals and early stage human clinical trials, whether pelareorep will prove to be safe and effective in humans. pelareorep will require additional research and development, including extensive additional clinical testing, before we will be able to obtain the approvals of the relevant regulatory authorities in applicable countries to

market pelareorep commercially. There can be no assurance that the research and development programs we conduct will result in pelareorep or any other products becoming commercially viable products, and in the event that any product or products result from the research and development program, it is unlikely they will be commercially available for a number of years.

To achieve profitable operations we, alone or with others, must successfully develop, introduce and market our products. To obtain regulatory approvals for products being developed for human use, and to achieve commercial success, human clinical trials must demonstrate that the product is safe for human use and that the product shows efficacy. Unsatisfactory results obtained from a particular study relating to a program may cause us to abandon our commitment to that program or the product being tested. No assurances can be provided that any current or future animal or human test, if undertaken, will yield favourable results. If we are unable to establish that pelareorep is a safe, effective treatment for cancer, we may be required to abandon further development of the product and develop a new business strategy.

There are inherent risks in pharmaceutical research and development.

Pharmaceutical research and development is highly speculative and involves a high and significant degree of risk. The marketability of any product we develop will be affected by numerous factors beyond our control, including but not limited to:

- the discovery of unexpected toxicities or lack of sufficient efficacy of products which make them unattractive or unsuitable for human use;
- preliminary results as seen in animal and/or limited human testing may not be substantiated in larger, controlled clinical trials;
- manufacturing costs or other production factors may make manufacturing of products ineffective, impractical and non-competitive;
- proprietary rights of third parties or competing products or technologies may preclude commercialization;
- requisite regulatory approvals for the commercial distribution of products may not be obtained; and
- other factors may become apparent during the course of research, up-scaling or manufacturing which may result in the discontinuation of research and other critical projects.

Our products under development have never been manufactured on a commercial scale, and there can be no assurance that such products can be manufactured at a cost or in a quantity to render such products commercially viable. Production and utilization of our products may require the development of new manufacturing technologies and expertise. The impact on our business in the event that new manufacturing technologies and expertise are required to be developed is uncertain. There can be no assurance that we will successfully meet any of these technological challenges or others that may arise in the course of development.

Any failure or delay in clinical trials for our products, including pelareorep, may cause us to incur additional costs or delay or prevent the commercialization of our products and could severely harm our business.

We must conduct extensive clinical trials to demonstrate the safety and efficacy of our products in humans. Clinical testing, in particular, is expensive, difficult to design and implement, can take many years to complete and is uncertain as to outcome. A failure of one or more of our clinical trials can occur at any stage of testing. We may experience numerous unforeseen events during, or as a result of, the clinical trial process, which could delay or prevent us from receiving marketing approval or commercializing our product candidates, including the following:

-

Our clinical trials may produce negative or inconclusive results, and we may decide, or regulatory authorities may require us, to conduct additional clinical trials or we may abandon projects that we expect to be promising;

The number of subjects required for our clinical trials may be larger than we anticipate, enrollment in our clinical trials may be slower than we anticipate, or participants may drop out of our clinical trials at a higher rate than we anticipate;

We might have to suspend or terminate our clinical trials if the participants are being exposed to unacceptable health risks;

Regulators or institutional review boards may require that we hold, suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements or our clinical protocols;

Regulators may refuse to accept or consider data from clinical trials for various reasons, including noncompliance with regulatory requirements or our clinical protocols;

The cost of our clinical trials may be greater than we anticipate; and

The supply or quality of our products or other materials necessary to conduct our clinical trials may be insufficient or inadequate.

Additionally, subject enrollment, which is a significant factor in the timing of clinical trials, is affected by a variety of factors, including the following:

- The size and nature of the subject population;
- The proximity of subjects to clinical sites;
- The eligibility criteria for the trial;
- The design of the clinical trial;
- Competing clinical trials; and
- Clinicians' and subjects' perceptions as to the potential advantages of the medication being studied in relation to other available therapies, including any new medications that may be approved for the indications we are investigating.

Furthermore, we plan to rely on clinical trial sites to ensure the proper and timely conduct of our clinical trials, and while we have agreements governing their committed activities, we have limited influence over their actual performance. Any delays or unanticipated problems during clinical testing, such as enrollment in our clinical trials being slower than we anticipate or participants dropping out of our clinical trials at a higher rate than we anticipate, could increase our costs, slow down our product development and approval process and jeopardize our ability to commence product sales and generate revenues.

Financial Condition Risks

We have no operating revenues and a history of losses.

To date, we have not generated sufficient revenues to offset our research and development costs and accordingly have not generated positive cash flow or made an operating profit. As of December 31, 2018, we had an accumulated deficit of \$311.5 million and we incurred net losses of \$17.0 million, \$15.6 million and \$15.1 million for the years ended December 31, 2018, 2017, and 2016, respectively. We anticipate that we will continue to incur significant losses during 2019 and in the foreseeable future. We do not expect to reach profitability at least until after successful and profitable commercialization of one or more of our products. Even if one or more of our products are profitably commercialized, the initial losses incurred by us may never be recovered.

We may not be able to obtain third-party reimbursement for the cost of our product.

Government authorities and third party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. A primary trend in the US healthcare industry and elsewhere is cost containment. Government authorities and these third party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Uncertainty exists regarding the reimbursement status of newly-approved pharmaceutical products and reimbursement may not be available for pelareorep. Any reimbursements granted may not be maintained or limits on reimbursements available from third-party payors may reduce the demand for, or negatively affect the price of, these products. If pelareorep does not qualify for reimbursement, if reimbursement levels diminish, or if reimbursement is denied, our sales and profitability would be adversely affected.

Third-Party Risk

In the normal course of our business, we have entered into contractual arrangements with third parties which subject us to the risk that such parties may default on their obligations. Oncolytics may be exposed to third party credit risk through our contractual arrangements with our current contract manufacturer, the institutions which operate our clinical trials, or our contract research organizations and other parties. In the event such entities fail to meet their contractual obligations to Oncolytics, such failures could have a material adverse effect on Oncolytics and our operations.

We may need additional financing in the future to fund the research and development of our products and to meet our ongoing capital requirements.

As of December 31, 2018, we had cash and cash equivalents of \$13.7 million. Working capital was approximately \$11.6 million. We anticipate that we will need additional financing in the future to fund research and development and to meet our ongoing capital requirements. The amount of future capital requirements will depend on many factors, including continued scientific progress in our drug discovery and development programs, progress in our pre-clinical and clinical evaluation of drug candidates, time and expense associated with filing, prosecuting and enforcing our patent claims and costs associated with obtaining regulatory approvals. In order to meet such capital requirements, we will consider contract fees, collaborative research and development arrangements, and additional public or private financings (including the incurrence of debt and the issuance of additional equity securities) to fund all or a part of particular programs as well as potential partnering or licensing opportunities.

Oncolytics, from time to time, along with all other pharmaceutical research and development entities, may have restricted access to capital, bank debt and equity, and, from time to time, may face increased borrowing costs. Although our business and asset base

have not changed, the lending capacity of all financial institutions fluctuates causing a corresponding change in risk premiums. As future operations will be financed out of funds generated from financing activities, our ability to do so is dependent on, among other factors, the overall state of capital markets and investor appetite for investments in the pharmaceutical industry and our securities in particular.

Should we elect to satisfy our cash commitments through the issuance of securities, by way of either private placement or public offering or otherwise, there can be no assurance that our efforts to raise such funding will be successful, or achieved on terms favourable to us or our existing shareholders. If adequate funds are not available on terms favorable to us, we may have to reduce substantially or eliminate expenditures for research and development, testing, production and marketing of our proposed product, or obtain funds through arrangements with corporate partners that require us to relinquish rights to certain of our technologies or product. There can be no assurance that we will be able to raise additional capital if our current capital resources are exhausted.

Regulatory Risks

Pharmaceutical products are subject to intense regulatory approval processes.

The regulatory process for pharmaceuticals, which includes preclinical studies and clinical trials of each compound to establish its safety and efficacy, takes many years and requires the expenditure of substantial resources. Moreover, if regulatory approval of a drug is granted, such approval may entail limitations on the indicated uses for which it may be marketed. Failure to comply with applicable regulatory requirements can, among other things, result in suspension of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution. Further, government policy may change, and additional government regulations may be established that could prevent or delay regulatory approvals for our products. In addition, a marketed drug and its manufacturer are subject to continual review. Later discovery of previously unknown problems with the product or manufacturer may result in restrictions on such product or manufacturer, including withdrawal of the product from the market.

The United States Food and Drug Administration (“FDA”) and similar regulatory authorities in other countries may deny approval of a new drug application if required regulatory criteria are not satisfied, or may require additional testing. Product approvals may be withdrawn if compliance with regulatory standards is not maintained or if problems occur after the product reaches the market. The FDA and similar regulatory authorities in other countries may require further testing and surveillance programs to monitor the pharmaceutical product that has been commercialized. Non-compliance with applicable requirements can result in fines and other judicially imposed sanctions, including product withdrawals, product seizures, injunction actions and criminal prosecutions.

In addition to our own pharmaceuticals, we may supply active pharmaceutical ingredients and advanced pharmaceutical intermediates for use in our customers’ drug products. The final drug products in which the pharmaceutical ingredients and advanced pharmaceutical intermediates are used, however, are subject to regulation for safety and efficacy by the FDA and possibly other regulatory authorities in other jurisdictions. Such products must be approved by such agencies before they can be commercially marketed. The process of obtaining regulatory clearance for marketing is uncertain, costly and time consuming. We cannot predict how long the necessary regulatory approvals will take or whether our customers will ever obtain such approval for their products. To the extent that our customers do not obtain the necessary regulatory approvals for marketing new products, our product sales could be adversely affected.

The FDA and other governmental regulators have increased requirements for drug purity and have increased environmental burdens upon the pharmaceutical industry. Because pharmaceutical drug manufacturing is a highly regulated industry, requiring significant documentation and validation of manufacturing processes and quality control assurance prior to approval of the facility to manufacture a specific drug, there can be considerable transition time

between the initiation of a contract to manufacture a product and the actual initiation of manufacture of that product. Any lag time in the initiation of a contract to manufacture product and the actual initiation of manufacture could cause us to lose profits or incur liabilities.

The pharmaceutical regulatory regime in Europe and other countries is generally similar to that of the United States. We could face similar risks in these other jurisdictions as the risks described above.

Our operations and products may be subject to other government manufacturing and testing regulations.

Securing regulatory approval for the marketing of therapeutics by the FDA in the United States and similar regulatory agencies in other countries is a long and expensive process, which can delay or prevent product development and marketing. Approval to market products may be for limited applications or may not be received at all.

The products we anticipate manufacturing will have to comply with the FDA's current Good Manufacturing Practices ("cGMP") and other FDA and local government guidelines and regulations, including other international regulatory requirements and

guidelines. Additionally, certain of our customers may require the manufacturing facilities contracted by us to adhere to additional manufacturing standards, even if not required by the FDA. Compliance with cGMP regulations requires manufacturers to expend time, money and effort in production and to maintain precise records and quality control to ensure that the product meets applicable specifications and other requirements. The FDA and other regulatory bodies periodically inspect drug-manufacturing facilities to ensure compliance with applicable cGMP requirements. If the manufacturing facilities contracted by us fail to comply with the cGMP requirements, the facilities may become subject to possible FDA or other regulatory action and manufacturing at the facility could consequently be suspended. We may not be able to contract suitable alternative or back-up manufacturing facilities on terms acceptable to us or at all.

The FDA or other regulatory agencies may also require the submission of any lot of a particular product for inspection. If the lot product fails to meet the FDA requirements, then the FDA could take any of the following actions: (i) restrict the release of the product; (ii) suspend manufacturing of the specific lot of the product; (iii) order a recall of the lot of the product; or (iv) order a seizure of the lot of the product.

We are subject to regulation by governments in many jurisdictions. If we do not comply with healthcare, drug, manufacturing and environmental regulations, among others, in such jurisdiction, our existing and future operations may be curtailed, and we could be subject to liability.

In addition to the regulatory approval process, we may be subject to regulations under local, provincial, state, federal and foreign law, including, but not limited to, requirements regarding occupational health, safety, laboratory practices, environmental protection and hazardous substance control, and may be subject to other present and future local, provincial, state, federal and foreign regulations.

Intellectual Property Risks

We rely on patents and proprietary rights to protect our technology.

Our success will depend, in part, on our ability to obtain patents, maintain trade secret protection and operate without infringing the rights of third parties. We have received Granted Patents in countries throughout the world, including the United States, Canada, Europe, and Japan. We file our Applications for Patent in the United States and under the PCT, allowing us to subsequently file in other jurisdictions. Our success will depend, in part, on our ability to obtain, enforce and maintain patent protection for our technology in Canada, the United States and other countries. We cannot be assured that patents will issue from any pending applications or that claims now or in the future, if any, allowed under issued patents will be sufficiently broad to protect our technology. In addition, no assurance can be given that any patents issued to, or licensed by us, will not be challenged, invalidated, infringed or circumvented, or that the rights granted thereunder will provide continuing competitive advantages to us.

The patent positions of pharmaceutical and biotechnology firms, including us, are generally uncertain and involve complex legal and factual questions. In addition, it is not known whether any of our current research endeavours will result in the issuance of patents in Canada, the United States, or elsewhere, or if any patents already issued will provide significant proprietary protection or will be circumvented or invalidated. Since patent applications in the United States and Canada may be maintained in secrecy until at least 18 months after filing of the original priority application, and since publication of discoveries in the scientific or patent literature tends to lag behind actual discoveries by several months, we cannot be certain that we or any licensor were the first to create inventions claimed by pending patent applications or that we or the licensor were the first to file patent applications for such inventions. Loss of patent protection could lead to generic competition for these products, and others in the future, which would materially and adversely affect our financial prospects for these products.

Similarly, since patent applications filed before November 29, 2000 in the United States may be maintained in secrecy until the patents issue or foreign counterparts, if any, publish, we cannot be certain that we or any licensor were the first creator of inventions covered by pending patent applications or that we or such licensor were the first to file patent applications for such inventions. There is no assurance that our patents, if issued, would be held valid or enforceable by a court or that a competitor's technology or product would be found to infringe such patents.

Accordingly, we may not be able to obtain and enforce effective patents to protect our proprietary rights from use by competitors. If other such parties obtain patents for certain information relied on by us in conducting our business, then we may be required to stop using, or pay to use, certain intellectual property, and as such, our competitive position and profitability could suffer as a result.

Third parties may choose to file patent infringement claims against us; defending ourselves from such allegations would be costly, time-consuming, distracting to management and could materially affect our business.

Our development and commercialization activities, as well as any product candidates or products resulting from these activities, may infringe or be claimed to infringe patents and other intellectual property rights of third parties under which we do not hold sufficient licenses or other rights. Additionally, third parties may be successful in obtaining patent protection for technologies that cover development activities in which we are already engaged. Third parties may own or control these patents and intellectual property rights in the United States and abroad. These third parties may have substantially greater financial resources than us and could bring claims against us that could cause us to incur substantial expenses to defend against these claims and, if successful against us, could cause us to pay substantial damages. Further, if a patent infringement or other similar suit were brought against us, we could be forced to stop or delay development, manufacturing or sales of the product or product candidate that is the subject of the suit. Intellectual property litigation in the biopharmaceutical industry is common, and we expect this trend to continue.

As a result of patent infringement or other similar claims, or to avoid potential claims, we may choose or be required to seek a license from the third party and be required to pay license fees or royalties or both. These licenses may not be available on acceptable terms, or at all. Even if we were able to obtain a license, the rights may be non-exclusive, which could result in our competitors gaining access to the same intellectual property. Ultimately, we could be prevented from commercializing a product, or be forced to cease some aspect of our business operations, if, as a result of actual or threatened patent infringement claims, we are unable to enter into licenses on acceptable terms, if at all, or if an injunction is granted against us, which could harm our business significantly.

If we are unable to protect the confidentiality of our proprietary information and know-how, the value of our technology and products could be adversely affected.

In addition to patented technology, we rely upon unpatented proprietary technology, processes and know-how. However, these types of trade secrets can be difficult to protect. We seek to protect this confidential information, in part, through agreements with our employees, consultants and third parties as well as confidentiality policies and audits, although these may not be successful in protecting our trade secrets and confidential information.

These agreements may be breached, and we may not have adequate remedies for any such breach. In addition, our trade secrets may otherwise become known, including through a potential cyber security breach, or may be independently developed by competitors. If we are unable to protect the confidentiality of our proprietary information and know-how, competitors may be able to use this information to develop products that compete with our products, which could adversely impact our business.

Other Business Risks

The biotechnology industry is extremely competitive and we must successfully compete with larger companies with substantially greater resources.

Technological competition in the pharmaceutical industry is intense and we expect competition to increase. Other companies are conducting research on therapeutics involving innate and adaptive immune responses as well as other novel treatments or therapeutics for the treatment of cancer which may compete with our product. Many of these competitors are more established, benefit from greater name recognition and have substantially greater financial, technical and marketing resources than us. In addition, many of these competitors have significantly greater experience in undertaking research, preclinical studies and human clinical trials of new pharmaceutical products, obtaining regulatory approvals and manufacturing and marketing such products. In addition, there are several other

companies and products with which we may compete from time to time, and which may have significantly better and larger resources than we do. Accordingly, our competitors may succeed in manufacturing and/or commercializing products more rapidly or effectively, which could have a material adverse effect on our business, financial condition or results of operations.

We anticipate that we will face increased competition in the future as new products enter the market and advanced technologies become available. There can be no assurance that existing products or new products developed by our competitors will not be more effective, or be more effectively manufactured, marketed and sold, than any that may be developed or sold by us. Competitive products may render our products obsolete and uncompetitive prior to recovering research, development or commercialization expenses incurred with respect to any such products.

Our products may fail or cause harm, subjecting us to product liability claims.

Use of our product during current clinical trials may entail risk of product liability. We maintain clinical trial liability insurance; however, it is possible this coverage may not provide full protection against all risks. Given the scope and complexity of the clinical development process, the uncertainty of product liability litigation, and the shrinking capacity of insurance underwriters, it is not possible at this time to assess the adequacy of current clinical trial coverage, nor the ability to secure continuing coverage at the same level and at reasonable cost in the foreseeable future. While we carry, and intend to continue carrying amounts believed to be appropriate under the circumstances, it is not possible at this time to determine the adequacy of such coverage.

In addition, the sale and commercial use of our product entails risk of product liability. We currently do not carry any product liability insurance for this purpose. There can be no assurance that we will be able to obtain appropriate levels of product liability insurance prior to any sale of our pharmaceutical products. An inability to obtain insurance on economically feasible terms or to otherwise protect against potential product liability claims could inhibit or prevent the commercialization of products developed by us. The obligation to pay any product liability claim or a recall of a product could have a material adverse effect on our business, financial condition and future prospects.

Future legal proceedings and the impact of any finding of liability or damages could adversely impact the company and its financial condition and results of operations.

From time to time, we may be named as a defendant in various legal actions or other proceedings, including class action lawsuits. Certain of these actions include and future actual or threatened legal actions may include, claims for substantial and indeterminate amounts of damages, or may result in other results adverse to us. Management does not currently know of any pending, material legal proceedings against the Company, but such legal action could be brought in the future.

The results of possible future legal proceedings cannot be predicted with certainty. Accordingly, we cannot determine whether our insurance coverage would be sufficient to cover the costs or potential losses, if any. Regardless of merit, litigation may be both time-consuming and disruptive to our operations and cause significant expense and diversion of management attention. If we do not prevail in future legal proceedings, we may be faced with significant monetary damages or injunctive relief against us that may adversely affect our business, financial condition and results of operations, possibly materially.

We have limited manufacturing experience and intend to rely on third parties to commercially manufacture our products, if and when developed.

To date, we have relied upon a contract manufacturer to manufacture small quantities of pelareorep. The manufacturer may encounter difficulties in scaling up production, including production yields, quality control and quality assurance. Only a limited number of manufacturers can supply therapeutic viruses and failure by the manufacturer to deliver the required quantities of pelareorep on a timely basis at a commercially reasonable price may have a material adverse effect on us. We have completed a program for the development of a commercial process for manufacturing pelareorep and have filed a number of patent applications related to the process. There can be no assurance that we will successfully obtain sufficient patent protection related to our manufacturing process.

New products may not be accepted by the medical community or consumers.

Our primary activity to date has been research and development and we have no experience in marketing or commercializing products. We will likely rely on third parties to market our products, assuming that they receive

regulatory approvals. If we rely on third parties to market our products, the commercial success of such product will be subject to a number of risks that may be outside of our control, including:

- competition in relation to alternative treatments, including efficacy advantages and cost advantages;
- perceived ease of use;
- the availability of coverage or reimbursement by third-party payors;
- uncertainties regarding marketing and distribution support; and
- distribution or use restrictions imposed by regulatory authorities.

Moreover, there can be no assurance that physicians, patients or the medical community will accept our product, even if it proves to be safe and effective and is approved for marketing by Health Canada, the FDA and other regulatory authorities. A failure to successfully market our product would have a material adverse effect on our revenue.

Our technologies may become obsolete.

The pharmaceutical industry is characterized by rapidly changing markets, technology, emerging industry standards and frequent introduction of new products. The introduction of new products embodying new technologies, including new manufacturing processes and the emergence of new industry standards may render our products obsolete, less competitive or less marketable. The process of developing our products is extremely complex and requires significant continuing development efforts and third party commitments. Our failure to develop new technologies and products and the obsolescence of existing technologies could adversely affect our business.

We may be unable to anticipate changes in our potential customer requirements that could make our existing technology obsolete. Our success will depend, in part, on our ability to continue to enhance our existing technologies, develop new technology that addresses the increasing sophistication and varied needs of the market, and respond to technological advances and emerging industry standards and practices on a timely and cost-effective basis. The development of our proprietary technology entails significant technical and business risks. We may not be successful in using our new technologies or exploiting our niche markets effectively or adapting our businesses to evolving customer or medical requirements or preferences or emerging industry standards.

We are highly dependent on third-party relationships for research and clinical trials.

We rely upon third party relationships for assistance in the conduct of research efforts, pre-clinical development and clinical trials, and manufacturing. In addition, we expect to rely on third parties to seek regulatory approvals for and to market our product. Although we believe that our collaborative partners will have an economic motivation to commercialize our product included in any collaborative agreement, the amount and timing of resources diverted to these activities generally is expected to be controlled by the third party. Furthermore, if we cannot maintain these relationships, our business may suffer.

Our license, development, supply and distribution agreement with Adlai Nortye Biopharma Co. is subject to certain risks and uncertainties related to our dependence on Adlai and doing business in foreign jurisdictions.

On November 16, 2017, we announced that we had entered into a license, development, supply, and distribution agreement (the "Licensing Agreement") with Adlai Nortye Biopharma Co., Ltd. ("Adlai"). Under the terms of the Licensing Agreement, Adlai will have exclusive development and commercialization rights to pelareorep in China, Hong Kong, Macau, Singapore, South Korea and Taiwan (the "Territories"). Pursuant to the Licensing Agreement, along with payments to be received by us upon meeting certain requirements and milestones, we are also eligible to receive royalty payments in excess of 10% associated with the commercialization of pelareorep for all indications, subject to regulatory approval. Under the terms of the Licensing Agreement, Adlai will be responsible for all clinical, regulatory and commercialization activities respecting pelareorep in the Territories and therefore the Company will be dependent upon Adlai in successfully undertaking those actions in a timely and economic manner and in compliance with all applicable legal and regulatory requirements within the Territories. If Adlai is unable to fulfill its obligations under the terms of the Licensing Agreement and in compliance with all applicable legal and regulatory requirements, including clinical, regulatory and commercialization of pelareorep, our prospective revenue from royalty payments related to the commercialization of pelareorep in the Territories may be materially diminished, delayed or never realized, which could negatively effect our operating results and financial condition.

Further, conducting business with Adlai within the Territories, and specifically China, subjects us to certain economic, political, currency and legal risks and uncertainties regarding, among other things, the development and commercialization of pelareorep and the release and receipt of payments under the terms of the Licensing Agreement, including the payment of royalties upon commercialization of pelareorep. These risks include:

- different regulatory requirements for drug approvals in foreign countries;
- different standards of care in various countries that could complicate the evaluation of our product candidates;
- different U.S. and foreign drug import and export rules;
- reduced protection for intellectual property rights in certain countries;
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- different reimbursement systems and different competitive drugs indicated to treat the indications for which our product candidates are being developed;
- economic weakness, including inflation, or political instability in particular foreign economies and markets;
 - compliance with the FCPA, and other anti-corruption and anti-bribery laws;
 - U.S. and foreign taxes;
- foreign currency fluctuations, which could result in reduced revenues, and other obligations incident to doing business in another country;

a reliance on CROs, clinical trial sites, principal investigators and other third parties that may be less experienced with clinical trials or have different methods of performing such clinical trials than we are used to in the U.S.;
potential liability resulting from development work conducted by foreign distributors; and
business interruptions resulting from geopolitical actions, including war and terrorism, or natural disasters.

The government's of the Territories, and specifically the Chinese government, exercise significant control over all aspects of their respective economies. Accordingly, any adverse change in the economy, the legal system or governmental, economic or other policies could have a material adverse effect on the business prospects of the Licensing Agreement with Adlai, including our ability to receive money out of China under the terms of the Licensing Agreement. Any disruption in relations, inability to work efficiently or disadvantageous treatment of Adlai by the governments of the Territories or other authorities could have a material adverse effect on our business prospects under the Licensing Agreement. Additionally, the regulatory environment in the Territories is evolving, and officials in the governments in the Territories exercise broad discretion in deciding how to interpret and apply regulations. There can be no assurance that Adlai will be successful in the development and commercialization of pelareorep in the Territories.

The cost of director and officer liability insurance may increase substantially and may affect our ability to retain quality directors and officers.

We carry liability insurance on behalf of our directors and officers. Given a number of large director and officer liability insurance claims in the US equity markets, director and officer liability insurance has become increasingly more expensive with increased restrictions. Consequently, there is no assurance that we will continue to be offered this insurance or be able to obtain adequate coverage. The inability to acquire the appropriate insurance coverage may limit our ability to attract and maintain directors and officers as required to conduct our business.

We are dependent on our key employees and collaborators.

Our ability to develop the product will depend, to a great extent, on our ability to attract and retain highly qualified scientific personnel and to develop and maintain relationships with leading research institutions. Competition for such personnel and relationships is intense. We are highly dependent on the principal members of our management staff as well as our advisors and collaborators, the loss of whose services might impede the achievement of development objectives. The persons working with us are affected by a number of influences outside of our control. The loss of key employees and/or key collaborators may affect the speed and success of product development.

Barbados law differs from the laws in effect in Canada and the United States and may afford less protection to holders of our securities.

Certain of our assets and intellectual property are held by our wholly-owned subsidiary, Oncolytics Barbados, which is organized under the laws of Barbados. It may not be possible to enforce court judgments obtained in Canada or the United States against Oncolytics Barbados in Barbados based on the civil liabilities provisions of applicable securities laws. In addition, there is some doubt as to whether the courts of Barbados would recognize or enforce judgments of courts in Canada or the United States obtained against us or our directors or officers based on the civil liabilities provisions of Canadian and United States securities laws or hear actions against us or those persons based on such laws.

Changes in law could adversely affect our business and corporate structure.

There can be no assurances that changes will not occur in corporate, tax, property and other laws in Canada and/or Barbados (or the interpretation thereof by regulatory or tax authorities) which may materially and adversely affect our businesses and corporate structure.

We incur some of our expenses in foreign currencies and therefore we are exposed to foreign currency exchange rate fluctuations.

We incur some of our manufacturing, clinical, collaborative and consulting expenses in foreign currencies, primarily the US dollar, the Euro and the British pound (“GBP”). We are therefore exposed to foreign currency rate fluctuations. Also, as we expand to other foreign jurisdictions there may be an increase in our foreign exchange exposure.

We earn interest income on our excess cash reserves and are exposed to changes in interest rates.

We invest our excess cash reserves in investment vehicles that provide a rate of return with little risk to principal. As interest rates change the amount of interest income we earn will be directly impacted.

Our operations may be adversely affected by disruptions to our information technology ("IT") systems, including disruptions from cybersecurity breaches of our IT infrastructure.

We rely on information technology networks and systems, including those of third-party service providers, to process, transmit and store electronic information. In particular, we depend on our information technology infrastructure for a variety of functions, including financial reporting, data management, and email communications. Any of these systems may be susceptible to outages due to fire, floods, power loss, telecommunications failures, terrorist attacks, sabotage and similar events. Global cybersecurity threats and incidents can range from uncoordinated individual attempts to gain unauthorized access to our information technology systems to sophisticated and targeted measures known as advanced persistent threats. The ever-increasing use and evolution of technology, including cloud-based computing, creates opportunities for the unintentional dissemination or intentional destruction of confidential information stored in our systems or in non-encrypted portable media or storage devices. We could also experience a business interruption, information theft of confidential information, or reputational damage from industrial espionage attacks, malware or other cyber attacks, which may compromise our system infrastructure or lead to data leakage, either internally or at our third-party providers. Despite the implementation of network security measures and disaster recovery plans, our systems and those of third parties on which we rely may also be vulnerable to computer viruses, break-ins and similar disruptions. If we or our vendors are unable (or are perceived as unable) to prevent such outages and breaches, our operations may be disrupted and our business reputation could be adversely affected.

We expect that risks and exposures related to cybersecurity attacks will remain high for the foreseeable future due to the rapidly evolving nature and sophistication of these threats.

The Company may fail to achieve and maintain adequate internal control over financial reporting pursuant to the requirements of the Sarbanes-Oxley Act and equivalent Canadian legislation.

The Company documented and tested during its most recent fiscal year its internal control procedures in order to satisfy the requirements of Section 404 of the Sarbanes-Oxley Act of 2002 ("SOX") and equivalent Canadian legislation. SOX requires an annual assessment by management of the effectiveness of the Company's internal control over financial reporting and an attestation report by the Company's independent auditors addressing this assessment, if applicable. The Company may fail to achieve and maintain the adequacy of its internal control over financial reporting as such standards are modified, supplemented, or amended from time to time, and the Company may not be able to ensure that it can conclude, on an ongoing basis, that it has effective internal control over financial reporting in accordance with Section 404 of SOX. The Company's failure to satisfy the requirements of Section 404 of SOX on an ongoing, timely basis could result in the loss of investor confidence in the reliability of its financial statements, which in turn could harm the Company's business and negatively impact the trading price of the common shares or the market value of its other securities. In addition, any failure to implement required new or improved controls, or difficulties encountered in their implementation, could harm the Company's operating results or cause it to fail to meet its reporting obligations. Future acquisitions of companies, if any, may provide the Company with challenges in implementing the required processes, procedures and controls in its acquired operations. No evaluation can provide complete assurance that the Company's internal control over financial reporting will detect or uncover all failures of persons within the Company to disclose material information otherwise required to be reported. The effectiveness of the Company's processes, procedures and controls could also be limited by simple errors or faulty judgments. In addition, if the Company expands, the challenges involved in implementing appropriate internal control over financial

reporting will increase and will require that the Company continue to improve its internal control over financial reporting.

Because the Company is a Canadian Company and some of its directors and officers are resident outside the United States, it may be difficult for investors in the United States to enforce civil liabilities against the Company based solely upon the federal securities laws of the United States.

The Company is a Canadian company, with its principal place of business in Canada. Some of the Company's directors and officers, including the Company's Chief Executive Officer and Chief Financial Officer, are residents outside the United States and a significant portion of the Company's assets are located outside the United States. Consequently, it may be difficult for US investors to effect service of process within the United States upon the Company or these directors or officers who are not residents of the United States, or to realize in the United States upon judgments of courts of the United States predicated upon civil liabilities under the US Securities Act of 1933, as amended. Investors should not assume that Canadian courts (1) would enforce judgments of US courts obtained in actions against the Company or such directors or officers predicated upon the civil liability provisions

of the US federal securities laws or the securities or “blue sky” laws of any state within the United States or (2) would enforce, in original actions, liabilities against the Company or such directors or officers predicated upon the US federal securities laws or any such state securities or “blue sky” laws. In addition, the protections afforded by Canadian securities laws may not be available to investors in the United States.

As a foreign private issuer, our shareholders may have less complete and timely data.

The Company is a “foreign private issuer” as defined in Rule 3b-4 under the United States Securities Exchange Act of 1934, as amended (the “US Exchange Act”). Equity securities of the Company are accordingly exempt from Sections 14(a), 14(b), 14(c), 14(f) and 16 of the US Exchange Act pursuant to Rule 3a12-3 of the US Exchange Act. Therefore, the Company is not required to file a Schedule 14A proxy statement in relation to its annual meeting of shareholders. The submission of proxy and annual meeting of shareholder information on Form 6-K may result in shareholders having less complete and timely information in connection with shareholder actions. The exemption from Section 16 rules regarding reports of beneficial ownership and purchases and sales of common shares by insiders and restrictions on insider trading in our securities may result in shareholders having less data and there being fewer restrictions on insiders’ activities in our securities.

The Company is likely a "passive foreign investment company" which may have adverse US federal income tax consequences for US shareholders.

US shareholders of the Common Shares should be aware that the Company believes it was classified as a passive foreign investment company (“PFIC”) for the tax year ended December 31, 2018, and based on current business plans and financial expectations, the Company anticipates that it may qualify as a PFIC for its current and subsequent taxable years. If the Company is a PFIC for any year during a US shareholder’s holding period, then such US shareholder generally will be required to treat any gain realized upon a disposition of Common Shares, or any so-called “excess distribution” received on its common shares, as ordinary income, and to pay an interest charge on a portion of such gain or distributions, unless the shareholder makes a timely and effective "qualified electing fund" election (“QEF Election”) or a "mark-to-market" election with respect to the Common Shares. A US shareholder who makes a QEF Election generally must report on a current basis its share of the Company's net capital gain and ordinary earnings for any year in which the Company is a PFIC, whether or not the Company distributes any amounts to its shareholders. However, US shareholders should be aware that there can be no assurance that the Company will satisfy the record keeping requirements that apply to a qualified electing fund, or that the Company will supply US shareholders with information that such U.S. shareholders require to report under the QEF Election rules, in the event that the Company is a PFIC and a U.S. shareholder wishes to make a QEF Election. Thus, US shareholders may not be able to make a QEF Election with respect to their Common Shares. A US shareholder who makes the mark-to-market election generally must include as ordinary income each year the excess of the fair market value of the common shares over the taxpayer’s basis therein. This paragraph is qualified in its entirety by the discussion below under the heading “Certain United States Federal Income Tax Considerations.” Each US shareholder should consult its own tax advisor regarding the PFIC rules and the US federal income tax consequences of the acquisition, ownership, and disposition of Common Shares.

Risks related to our Common Shares

Our share price may be highly volatile.

Market prices for securities of biotechnology companies generally are volatile and the share price for our common shares has been historically volatile. This increases the risk of securities litigation. Factors such as announcements (publicly made or at scientific conferences) of technological innovations, new commercial products, patents, the

development of proprietary rights, results of clinical trials, regulatory actions, publications, quarterly financial results, our financial position, public concern over the safety of biotechnology, future sales of shares by us or our current shareholders and other factors could have a significant effect on the market price and volatility of the Common Shares.

Potential dilution of present and prospective shareholdings.

In order to finance future operations and development efforts, the Company may raise funds through the issue of common shares or the issue of securities convertible into common shares. The Company cannot predict the size of future issues of common shares or the issue of securities convertible into common shares or the effect, if any, that future issues and sales of the Company's common shares will have on the market price of its common shares. Any transaction involving the issue of previously authorized but unissued shares, or securities convertible into shares, would result in dilution, possibly substantial, to present and prospective holders of shares.

The Company does not intend to pay cash dividends in the foreseeable future.

The Company has not declared or paid any dividends since its incorporation. The Company intends to retain earnings, if any, to finance the growth and development of its business and does not intend to pay cash dividends on the Common Shares in the foreseeable future. Any return on an investment in the common shares will come from the appreciation, if any, in the value of the Common Shares. The payment of future cash dividends, if any, will be reviewed periodically by the board of directors and will depend upon, among other things, conditions then existing including earnings, financial condition and capital requirements, restrictions in financing agreements, business opportunities and conditions and other factors.

ITEM 4. INFORMATION ON THE COMPANY

A. History and Development of the Company

Oncolytics Biotech Inc. was formed under the Business Corporations Act (Alberta) on April 2, 1998 as 779738 Alberta Ltd. On April 8, 1998, we changed our name to Oncolytics Biotech Inc.

Our principal executive office is located at 210, 1167 Kensington Cres. NW, Calgary, Alberta, Canada, T2N 1X7, telephone (403) 670-7377. Our agent for service in the US is CT Corporation, 111 Eighth Avenue, 13th Floor, New York, New York 10011.

A description of the important events in our development including licensing transactions, our principal capital expenditures and divestitures and a description of acquisitions of material assets can be found in our MD&A and in the notes to our financial statements included elsewhere in this annual report.

The SEC maintains a Website that contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC at <https://www.sec.gov>. The filings are also contained on the Company's website at <https://www.oncolyticsbiotech.com>.

B. Business Overview

Since our inception in April of 1998, Oncolytics Biotech Inc. has been a development stage company and we have focused our research and development efforts on the development of pelareorep, a systemically administered immuno-oncology (I-O) viral agent with the potential to treat a variety of cancers. We have not been profitable since our inception and expect to continue to incur substantial losses as we continue research and development efforts. We do not expect to generate significant revenues until, if and when, pelareorep becomes commercially viable.

Our Business

Our potential product for human use, pelareorep, an unmodified reovirus, is a first in class systemically administered I-O viral agent for the treatment of solid tumors and hematological malignancies.

Scientific Background

Pelareorep's anti-tumor activity is based on three modes of action which are complementary but not interdependent (Figure 1):

• Selective viral replication in permissive cancer cells which leads to tumor cell lysis.

• Activation of innate immunity in response to the infection which results in a cascade of chemokines/cytokines causing natural killer (NK) cells to be activated and attack cancer cells.

• A specific adaptive immune response triggered by tumor- and viral-associated antigens displayed by antigen-presenting cells (APCs), infected tumor cells and/or dendritic cells to T cells.

Summary of Research and Development highlights

Preclinical and translational research to date indicates the following:

• Pelareorep has anticancer effects in models of metastatic cancers that can prolong survival in these models when using immuno-competent rodents.

- The survival benefit in animal models can be enhanced when pelareorep is given in combination with chemotherapy, immunotherapy or radiotherapy.

A toxic dose of pelareorep has not been reached/established in animal models and infection presents with minimal side-effects.

Clinical data to date indicate the following:

More than 1,400 patients have been enrolled in clinical studies conducted in the US, Canada and EU. Of these, more than 1,000 patients received pelareorep, with over 930 via intravenous (IV) administration and over 90 by intratumoral injections (ITu). The remaining patients were randomized to control arms on other therapies.

Pelareorep has been administered as single or multiple doses (intratumoral or intravenous), either as a mono-therapy or in combination with chemotherapy, immunotherapy (e.g., checkpoint inhibitors), and radiotherapy.

No Maximum Tolerated Dose (MTD) for intravenous pelareorep as mono-therapy was defined in the two Phase 1 trials (REO 004 and 005). Dose-limiting toxicities (DLTs) were seen in some of the combination trials with pelareorep and chemotherapy, which generally enrolled heavily pre-treated patients.

When combined with chemotherapeutic agents, pelareorep does not appear to enhance either the frequency or severity of the adverse effects of the chemotherapeutic agents.

There is emerging evidence that pelareorep may impact overall survival (OS) in metastatic breast cancer (mBC) and metastatic adenocarcinoma of the pancreas (MAP):

- In a randomized, controlled Phase 2 study of paclitaxel with pelareorep versus paclitaxel alone in mBC (CCTG IND.213) median survival time was greater for subjects treated with paclitaxel and pelareorep (median 17.4 months) than subjects treated with paclitaxel alone (10.4 months, hazard ratio (HR) 0.65).

In a single arm study with gemcitabine plus pelareorep in first line MAP (REO 017) the median overall survival (mOS) was 10 months with a 1 year and 2-year survival of 46% and 24%, respectively.

In a two-arm Phase 2 randomized study (NCI 8601), patients with MAP were randomized to receive either carboplatin, paclitaxel and pelareorep (test arm) or carboplatin and paclitaxel alone (control arm). The median OS was similar for both arms, but the probability of survival at Year 2 was 20% in the test arm vs 9% in the control arm.

Mechanism of Action

Figure 1. Proposed mechanism of action for pelareorep.

1. Direct cell lysis - Reovirus Replication in Permissive Cancer Cells

Selective viral replication and lysis in cancer cells and not normal cells is mediated by the host cellular protein dsRNA-activated protein kinase (PKR). In non-cancer cells that are infected with reovirus, PKR activates in the presence of the virus which in turn inhibits viral gene translation. However, in permissive cancer cells, PKR activation is inhibited, allowing for viral gene translation and eventual cell lysis.

It was originally established that selective lysis with reovirus was mediated by tumor cells with an activated Rat sarcoma virus oncogene (RAS)-pathway, since active RAS inhibits PKR activation. However, more recent investigations have revealed that reovirus replication is not just restricted to cells with an active RAS pathway, oncogenic mutations and amplifications in upstream and downstream mediators of the RAS-pathway also allow for viral replication and oncolysis. Moreover, active RAS is known to stimulate over 18 downstream effector proteins, many of which have been shown to facilitate viral replication, such as activation. Cells bearing dysfunctional or deleted tumor suppressor genes and or chemo- or radiation-induced cell stress also show increased sensitivity to reovirus replication and lysis.

2. Induction of Innate Immunity

Preclinical and clinical studies provide compelling lines of evidence that pelareorep functions as an immunogenic agent. Indeed, preclinical studies by Steele and colleagues demonstrated that melanoma cells infected with pelareorep can produce an innate immune response triggering the release of inflammatory cytokines. This inflammatory environment promotes a chemotactic response in NK cells, dendritic cells, and cytotoxic T-cells, altering the tumour microenvironment to support bystander immune-mediated cancer cell death. Intriguingly, preclinical studies have also demonstrated that the beneficial immunogenic functions of pelareorep can occur independent of viral replication. Pelareorep performs this immunogenic function, in part, by activating dendritic cells, key regulators of both adaptive and innate immunity. Dendritic cells activated by reovirus in turn stimulate the innate antitumor activity of NK cells and aid in the priming of specific antitumor cytotoxic lymphocyte, demonstrating that dendritic cells recognition of reovirus may trigger a beneficial innate immune response.

A clinical trial with pelareorep (REO 013) provided an opportunity to study human NK cell activation in a controlled manner. Ten colorectal cancer patients with liver metastases received between one and five doses of pelareorep prior to surgical resection of their tumor. NK cell activation peaked 24-48 hours post-infection, coincident with a peak of pro-inflammatory cytokines. NK cells within reovirus-treated blood mononuclear cells were stimulated to kill tumor targets, but not normal hepatocytes. Moreover, peripheral blood mononuclear cells were able to hand-off virus to tumors for direct oncolytic killing. Similarly, NK cells within liver mononuclear cells became selectively cytotoxic towards tumor cells when activated by reovirus. These results showed that reovirus modulates human NK cell activity in vivo and suggest that this may contribute to the therapeutic effect of pelareorep.

3. Induction of Adaptive Immunity

Adaptive anti-tumor immunity allows for elimination of existing cancer cells and performs constant surveillance, preventing relapse, and increasing patient overall survival. An adaptive immune response requires two signals: a signal from an APC, as well as a co-stimulation signal in the form of cytokines. In the absence of both signals, the adaptive immune response fails. Therapy with pelareorep has the potential to activate both signals. Following its therapeutic administration, pelareorep enhances the expression of 'foreign' antigens/markers on tumor cells. Oncolysis of tumor cells exposes tumor-associated antigens (TAAs) and viral-associated antigens (VAAs) for processing and presentation by APCs, such as dendritic cells. Through the combined actions of these immunological events, pelareorep facilitates the display of novel 'foreign' antigens on the surface of infected tumor cells and APCs.

Simultaneously, pelareorep induces an inflammatory response promoting the expression of co-stimulatory molecules and inflammatory cytokines. Together, pelareorep mediated immunological events over-rule tumor antigen presentation impairments and initiate adaptive anti-tumor immunity.

By promoting the expression of novel antigens and the release of inflammatory cytokines, pelareorep, promotes an inflamed tumor phenotype. An inflamed tumor phenotype is characterized by NK and T-cell infiltration, increased expression of chemokines/cytokines, and increased expression of checkpoint ligands. This phenotype correlates with an increase in overall survival and has a positive prognostic value for early stage cancers. In patients with metastatic cancer, an inflamed tumor phenotype is associated with better clinical outcomes when treated with immunotherapies, including immune checkpoint blockade inhibitors, cancer vaccines, and adoptive T-cell therapies. By promoting an inflamed tumor phenotype, pelareorep primes an anti-cancer immune response (Figure 2).

Figure 2. Pelareorep primes an anti-cancer immune response
Clinical Development Plan

The primary objective of our clinical development plan is to obtain regulatory approval for pelareorep as quickly as possible and is based on the compelling mBC survival data that was presented at the 2017 American Association for Cancer Research (AACR) Annual Meeting, in Washington, D.C. The second objective is to expand pelareorep into commercially valuable new treatment areas. Our clinical development program focuses on the three components of pelareorep's mechanism of action and includes the following:

1. Immunotherapy combinations - This program focuses on the potential for pelareorep to cause a specific adaptive immune response in combination with checkpoint inhibitors. In 2017, we announced our first data set combining a checkpoint inhibitor with pelareorep and pembrolizumab (Keytruda®) in pancreatic cancer, which demonstrated safety and tolerability and in five efficacy evaluable patients, one had a partial response (six-month duration) and two had stable disease (lasting 126 and 221 days). In early 2019 we announced the regulatory approval of the AWARE-1 study which examines the use of pelareorep and atezolizumab (Tecentriq®) in a breast cancer window-of-opportunity study. Additional studies are now being planned.

2. Chemotherapy combinations - This program focuses on the investigation of chemotherapy combination clinical trials investigating the use of different chemotherapy agents in various tumor types. In 2017, we reported additional clinical data from our randomized clinical program which includes clinical trial collaborations with the Canadian Cancer Trials Group (CCTG, formerly known as the National Cancer Institute of Canada). Specifically, subgroup analysis in the IND 213 trial in mBC revealed a significant improvement in the overall survival of patients that are hormone receptor positive (HR+) / human epidermal growth factor receptor 2 negative (HER2-). In HR+/HER2- patients, pelareorep therapy in combination with paclitaxel doubled the overall survival from 10.8 month with paclitaxel therapy alone to 21.8 months with pelareorep plus paclitaxel. This increase in overall survival is consistent with previous survival data reported from our U.S. NCI pancreatic trial which suggests a long-term survival benefit when comparing test and control arms at 24 months.

3. Targeted and immunomodulatory combinations - This program focuses on the potential of pelareorep in combination with targeted and immunomodulatory therapies to significantly stimulate a patient's innate immunity. In 2017, patient enrollment commenced on a clinical collaboration with Myeloma UK and Celgene that combines pelareorep with immune modulator therapies (IMiDs) which enhance NK cell activation. Additional studies are now being planned with additional targeted agents.

Patents and Trade Secrets

The patent positions and proprietary rights of pharmaceutical and biotechnology firms, including us, are generally uncertain and involve complex legal and factual questions. We believe there will continue to be significant litigation in the industry regarding patent and other intellectual property rights.

Currently, we have 398 issued patents including 49 issued in the US and 21 in Canada. We also have 20 patents pending in the US, Canada, and other jurisdictions, but we cannot be certain whether any given patent application filed by us will result in the issuance of a patent or if any given patent issued to us will later be challenged and invalidated. Nor can we be certain whether any given patent that may be issued to us will provide any significant proprietary protection to our product and business.

Litigation or other proceedings may also be necessary to enforce or defend our proprietary rights and patents. In Europe, patents can be revoked through opposition or nullity proceedings. In the United States patents may be revoked or invalidated in court actions or challenged in interference, post-grant review, inter partes review, derivation or re-examination proceedings by the United States Patent and Trademark Office ("USPTO"). Such litigation or proceedings could result in substantial cost or distraction to us, resulting in an adverse decision as to our or our licensors' patent applications and patents.

Our commercial success depends, in part, on not infringing the patents or proprietary rights of others and not breaching licenses granted or that may be granted to us. Competitors may have filed patent applications, obtained patents, may in the future file patent applications, and/or obtain patents relevant to our product and technologies. We are not aware of competing intellectual property relating to our pelareorep project at this time. While we currently believe that we have the necessary freedom to operate in these areas, there can be no assurance that others will not challenge our position in the future. Litigation to defend our position could be costly and time consuming. We also cannot be certain that we will be successful. We may be required to obtain a license from a prevailing party in order to continue the portion of our business that relates to the proceeding. We may also be required to obtain licenses to other third-party technologies necessary in order to market our products. Such licenses may not be available to us on acceptable terms, or on any terms, and we may have to discontinue that portion of our business. Any failure to license any technologies required to commercialize our technologies or products at reasonable cost may have a material adverse effect on our business, results of operations, financial condition, cash flow and future prospects. We are not currently involved in any litigation concerning our competitors' patent applications and patents. We may be involved in such litigation in the future.

We also rely on unpatented trade secrets and improvements, unpatented know-how and continuing technological innovation to develop and maintain our competitive position. No assurance can be given that others will not independently develop substantially equivalent proprietary information and techniques, or otherwise gain access to our trade secrets or disclose such technology, or that we can meaningfully protect our rights to our unpatented trade secrets.

We require our employees and consultants to execute confidentiality agreements upon the commencement of employment and consulting relationships with us. These agreements provide that all confidential information developed by or made known to an individual during the course of the employment or consulting relationship generally must be kept confidential. In the case of employees, the agreements provide that all inventions conceived by the individual, while employed by us, relating to our business are our exclusive property. While we have implemented reasonable business processes and agreements with which to protect confidential information, these actions may not provide meaningful protection for our trade secrets in the event of unauthorized use or disclosure of such information.

Business Strategy

Our business strategy is to develop and market pelareorep in an effective and timely manner, and access additional technologies at a time and in a manner that we believe is best for our development. We intend to achieve our business strategy by focusing on these key areas:

• Develop pelareorep through our clinical development plan assessing the safety and efficacy in human subjects;

• Establish collaborations with experts to assist us with scientific and clinical developments of this new potential pharmaceutical product;

• Implement strategic alliances with select biopharmaceutical companies and laboratories, at a time and in a manner whereby such alliances may complement and expand our own research and development efforts. Such alliances may also result in an eventual expansion to include providing additive sales and marketing capabilities;

• Utilize our broadening patent base and collaborator network as a mechanism to meet our strategic objectives; and

• Develop relationships with companies that could be instrumental in assisting us to access other innovative therapeutics.

Our business strategy is based on attaining a number of commercial objectives, which, in turn, are supported by a number of product development goals. In the context of this Annual Report, statements of our "belief" are based primarily upon our results derived to date from our research and development program with animals, early stage human trials and our most recent data in HR+/HER2- mBC patients, upon which we believe that we have a reasonable scientific basis to expect the particular results to occur. It is not possible to predict, based upon studies in animals, or early stage human trials, whether a new therapeutic will ultimately prove to be safe and effective in humans. There are no assurances that the particular result expected by us will occur.

At this time we do not intend to become a fully integrated pharmaceutical company with substantial in-house research and development, marketing and distribution or manufacturing capabilities. We are pursuing a strategy of establishing relationships with larger companies as strategic partners. It is anticipated that future clinical development into large international or pivotal trials would generally occur in conjunction with a strategic partner or partners, who would contribute expertise and financial assistance. In exchange for certain product rights and commitments to market our products, the strategic partners would be expected to share in proceeds from the sale of our product or products.

Regulatory Requirements

The development of new pharmaceuticals is strongly influenced by a country's regulatory environment. The drug approval process in Canada is regulated by Health Canada. The primary regulatory body in the United States is the FDA and in Europe is the European Medicines Agency (the "EMA"). Similar processes are conducted in specific countries by equivalent regulatory bodies. Regulations in each jurisdiction require the licensing of manufacturing facilities and mandate strict research and product testing standards. Companies must establish the safety and efficacy of their products, comply with cGMP and potentially submit marketing materials before being allowed to market pharmaceutical products. While we plan to pursue or support the pursuit of the approval of our product, success in acquiring regulatory approval for any product is not assured.

In order to market our pharmaceutical product in Canada, the United States, Europe and other jurisdictions, we must successfully meet the requirements of those jurisdictions. The requirements of the Appropriate Regulatory Authority will generally include the following stages as part of the regulatory process:

• Pre-Pharmacological Studies - Pre-Pharmacological studies involve extensive testing on laboratory animals to determine if a potential therapeutic product has utility in an in vivo disease model and has any adverse toxicology in a disease model.

• Investigational New Drug Application - An Investigational New Drug ("IND") Submission, or the equivalent, must be submitted to the appropriate regulatory authority prior to conducting Pharmacological Studies.

• Pharmacological Studies (or Phase 1 Clinical Trials) - Pharmacological studies are designed to assess the potential harmful or other side effects that an individual receiving the therapeutic compound may experience. These studies, usually short in duration, are often conducted with healthy volunteers or actual patients and use up to the maximum expected therapeutic dose.

• Therapeutic Studies (or Phase 2 and 3 Clinical Trials) - Therapeutic studies are designed primarily to determine the appropriate manner for administering a drug to produce a preventive action or a significant beneficial effect against a

disease. These studies are conducted using actual patients with the condition that the therapeutic is designed to remedy. Prior to initiating these studies, the organization sponsoring the program is required to satisfy a number of requirements via the submission of documentation to support the approval for a clinical trial.

New Drug Submission - After all three phases of a clinical trial have been completed, the results are submitted with the original IND Submission to the appropriate regulatory authority for marketing approval. Once marketing approval is granted, the product is approved for commercial sales.

Marketing Approvals

The results of the preclinical and clinical testing, together with manufacturing and controls information, are submitted to regulatory agencies in order to obtain approval to commence commercial sales. In responding to such an application, regulatory agencies may grant marketing approval, request additional information or further research, or deny the application if they determine that the application does not satisfy their regulatory approval criteria. Approval for a pharmaceutical or biologic product may not be granted on a timely basis, if at all. If granted, the approval may not cover all the clinical indications for which approval is sought, or may contain significant limitations in the form of warnings, precautions or contraindications with respect to conditions of use.

Satisfaction of pre-market approval requirements for new drugs and biologics typically takes several years, with the actual time required varying substantially based upon the type, complexity and novelty of the product or targeted disease. Government regulation may delay or prevent marketing of potential products for a considerable period of time and impose costly procedures upon our activities. Success in early stage clinical trials or with prior versions of products does not assure success in later stage clinical trials. Data obtained from clinical activities are not always conclusive and may be susceptible to varying interpretations that could delay, limit or prevent regulatory approval.

Post-Marketing Regulations

Once approved, regulatory agencies may withdraw the product approval if compliance with pre- and/or post-marketing regulatory standards is not maintained or if problems occur after the product reaches the marketplace. In addition, they may require post-marketing studies, referred to as Phase 4 studies, to monitor the effect of an approved product, and may limit further marketing of the product based on the results of these post-market studies. The FDA and other foreign regulatory agencies have broad post-market regulatory and enforcement powers, including the ability to levy fines and penalties, suspend or delay issuance of approvals, seize or recall products, or withdraw approvals.

Manufacturing Regulations

We use contract toll manufacturers to produce pelareorep. Our toll manufacturers are subject to periodic inspection by the FDA, the United States Drug Enforcement Administration, or DEA, and other domestic and foreign authorities where applicable, and must comply with cGMP regulations. Manufacturers of biologics also must comply with general biological product standards. Failure to comply with the statutory and regulatory requirements subjects the manufacturer to possible legal or regulatory action, such as suspension of manufacturing, seizure of product, or mandatory or voluntary recall of a product. Adverse experiences with the product must be reported to the FDA and foreign agencies and could result in the imposition of market restrictions through labeling changes or in product removal. Product approvals may be withdrawn if compliance with regulatory requirements is not maintained or if problems concerning safety or efficacy of the product occur following approval.

Advertising and Promotion Regulations

With respect to both pre- and post-market product advertising and promotion, the FDA and similar foreign agencies impose a number of complex regulations on entities that advertise and promote pharmaceuticals and biologics, which include, among other things, standards and regulations relating to direct-to-consumer advertising, on vs. off-label promotion, industry sponsored scientific and educational activities, and promotional activities involving the Internet. These agencies have very broad enforcement authority and failure to abide by these regulations can result in penalties including the issuance of a warning letter directing the entity to correct deviations from requisite standards, a requirement that future advertising and promotional materials be pre-cleared by the FDA or relevant foreign agencies,

and foreign, state and federal civil and criminal investigations, fines and prosecutions.

Other Government Regulations

We are subject to various laws and regulations regarding laboratory practices, the experimental use of animals, and the use and disposal of hazardous or potentially hazardous substances in connection with our research. In each of these areas, as above, the government has broad regulatory and enforcement powers, including the ability to levy fines and civil penalties, suspend or delay issuance of approvals, seize or recall products, and withdraw approvals, any one or more of which could have a material adverse effect upon us.

Market and Competition

According to estimates for 2019 from the American Cancer Society, more than 1.7 million Americans are expected to be diagnosed with cancer in the year, and 606,880 Americans are expected to die of cancer. Cancer is the second most common cause of death in the US, exceeded only by heart disease. In the United States, the relative lifetime risk of a male or female developing cancer is

1 in 3 (Source: American Cancer Society's Cancer Facts & Figures 2019). The prevalence of breast cancer in the United States in 2016 was 3.56 million, of which there were 2.6 million patients with HR+/HER2- subtype and 154,885 patients with HR+/HER2- stage IV breast cancer. (Source: <https://seer.cancer.gov/statfacts/html/breast.html>. Accessed on March 28, 2017. Howlader, Nadia, et al. US Incidence of Breast Cancer Subtypes Defined by Joint Hormone Receptor and HER2 Status. Journal of the National Cancer Institute. Accessed March 28, 2017).

The costs of this disease state are also significant. In the United States, the American Cancer Society reported in its Cancer Facts & Figures 2018 that the Agency for Healthcare Research and Quality estimated the 2015 direct medical costs for cancer were \$80.2 billion. (Source: American Cancer Society's Cancer Facts & Figures 2019).

We face substantial competition in the development of products for cancer and other diseases. This competition from other manufacturers of the same types of products and from manufacturers of different types of products designed for the same uses is expected to continue in both US and international markets. Oncolytic virus therapies, our primary focus area, are rapidly evolving areas in the biotechnology industry and are expected to undergo many changes in the coming years as a result of technological advances. We are currently aware of a number of groups that are developing oncolytic virus therapies including early-stage and established biotechnology companies, pharmaceutical companies, academic institutions, government agencies and research institutions. We face competition from all of these groups in areas such as recruiting employees, acquiring technologies that might enhance our ability to commercialize products, establishing relationships with certain research and academic institutions, enrolling patients in clinical trials and seeking program partnerships and collaborations with larger pharmaceutical companies. It is possible that our competitors could achieve earlier market commercialization, could have superior patent protection, or could have safer, more effective or more cost-effective products. These factors could render our potential products less competitive, which could adversely affect our business.

Product Marketing Strategy

The markets for the cancer product being developed by us may be large and could require substantial sales and marketing capability. Before or upon successful completion of the development of a cancer product, we intend to enter into one or more strategic partnerships or other collaborative arrangements with a pharmaceutical company or other company with marketing and distribution expertise to address this need. If necessary, we will establish arrangements with various partners for different geographical areas or specific applications at various times in the development process. Our management and consultants have relevant experience with the partnering process.

Seasonality of Business

Our results of operations have not been materially impacted by seasonality.

C. Organizational Structure

On December 31, 2018, we had one material wholly-owned operating subsidiary; Oncolytics Biotech (Barbados) Inc. ("OBB"), a Barbados company. In addition, Oncolytics Biotech (US) Inc., a Delaware corporation, is a material wholly-owned subsidiary of OBB.

D. Property, Plant and Equipment

We currently lease our head office in Calgary, Alberta, Canada as well as our office spaces in San Diego, California, US and Barbados. We do not own or lease any other office space, manufacturing facilities or equipment and do not have any current plans to construct or acquire any facilities.

ITEM 4A. UNRESOLVED STAFF COMMENTS

None.

ITEM 5. OPERATING AND FINANCIAL REVIEW AND PROSPECTS

Our Management Discussion and Analysis (“MD&A”) contains forward-looking statements, including our belief as to the potential of pelareorep, a therapeutic reovirus, as a cancer therapeutic and our expectations as to the success of our research and development and manufacturing programs in 2019 and beyond, future financial position, business strategy and plans for future operations, and statements that are not historical facts, involve known and unknown risks and uncertainties, which could cause our actual results to differ materially from those in the forward-looking statements. See “Cautionary Note Regarding Forward-Looking Statements”.

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With respect to the forward-looking statements made within our MD&A, we have made numerous assumptions regarding among other things: our ability to obtain financing to fund our development program, our ability to receive regulatory approval to commence enrollment in our clinical trial program, the final results of our co-therapy clinical trials, our ability to maintain our supply of pelareorep and future expense levels being within our current expectations. Investors are cautioned against placing undue reliance on forward-looking statements. We do not undertake to update these forward-looking statements except as required by applicable law.

A. Operating Results

Please see our 2018 Management Discussion and Analysis in Exhibit 15.1, which is incorporated herein by reference.

B. Liquidity and Capital Resources

Please see our 2018 Management Discussion and Analysis in Exhibit 15.1, which is incorporated herein by reference.

C. Research and Development, Patents, and Licenses, etc.

Please see the disclosure in "Item 4. Information on the Company B. Business Overview" for information on the Company's research and development policies. Our research and development expenses were \$9,417,888, \$9,392,623, and \$9,770,007 for 2018, 2017 and 2016, respectively.

D. Trend Information

It is important to note that historical patterns of expenditures cannot be taken as an indication of future expenditures. The amount and timing of expenditures and availability of capital resources vary substantially from period to period, depending on the level of research and development activity being undertaken at any one time and the availability of funding from investors and prospective commercial partners. See our 2018 Management Discussion and Analysis in Exhibit 15.1 for our comparative discussion on our expenditures between 2016 - 2018 and our expectations for 2019.

Except as disclosed elsewhere in our annual report, we know of no trends, uncertainties, demands, commitments or events that are reasonably likely to have a material effect on our liquidity or capital resources or that would cause reported financial information not necessarily to be indicative of future operating results or financial conditions.

E. Off-Balance Sheet Arrangements

As at December 31, 2018, we had not entered into any off-balance sheet arrangements.

F. Tabular Disclosure of Contractual Obligations

We have the following contractual obligations as at December 31, 2018:

Contractual Obligations	Payments Due by Period				
	Total	Less than 1 year	2 -3 years	4 - 5 years	After 5 years
	\$	\$	\$	\$	\$
Capital lease obligations	Nil	—	—	—	—

Operating lease ⁽¹⁾	961,575	423,718	537,857	—	—
Purchase obligations	8,199,509	8,199,509	—	—	—
Other long term obligations	Nil	—	—	—	—
Total contractual obligations	9,161,084	8,623,227	537,857	—	—

Note:

(1) Our operating leases are comprised of our office leases and exclude our portion of operating costs.

We expect to fund our capital expenditure requirements and commitments with existing working capital.

G. Safe Harbor

We seek safe harbor for our forward-looking statements contained in Items 5.E and F. See “Cautionary Note Regarding Forward-Looking Statements”.

ITEM 6. DIRECTORS, SENIOR MANAGEMENT AND EMPLOYEES

A. Directors and Senior Management

The following table sets forth the names and places of residence of all our directors and officers as at December 31, 2018, as well as the positions and offices held by such persons and their principal occupations.

Name and Place of Residence	Position with the Company	Principal Occupation	Director of the Company Since
Deborah M. Brown, BSc, MBA ⁽¹⁾⁽²⁾ Ontario, Canada	Director	Ms. Brown is the Managing Partner at Accelera CANADA, a specialty consultancy firm that assists emerging biopharma ventures in the United States and Europe with the development and implementation of Canadian market strategies. Prior to this, she held progressively senior roles at EMD Serono from 2000 to 2014, including Executive Vice President of Neuroimmunology for the company’s U.S. operations, and President and Managing Director of the company’s Canadian operations. In 2012, Ms. Brown was Chair of the Canadian National Pharmaceutical Organization (now Innovative Medicines Canada) and served on its Board of Directors from 2007 to 2014. She holds board and audit/compensation/governance committee positions in both commercial and not-for-profit sectors, including Cardiol Therapeutics, Oncolytics Biotech, Life Sciences Ontario and the HBSPCA. Ms. Brown holds an MBA from University of Western Ontario’s Ivey School of Business, an Hons B.Sc. from the University of Guelph and completed the Merck executive development programme at the University of Hong Kong, INSEAD and Northwestern University’s Kellogg School of Management.	November 2, 2017
Matthew C. Coffey, PhD, MBA Alberta, Canada	Chief Executive Officer and Director	A co-founder of the Company, Dr. Coffey has been the President and Chief Executive Officer of the Company since January 2017. Dr. Coffey completed his doctorate degree in oncology at the University of Calgary with a focus on the oncolytic capabilities of the reovirus. The results of his research have been published in various respected scientific journals, including Science, Human Gene Therapy, and The EMBO Journal. Dr. Coffey has held the positions of Interim President and Chief Executive Officer from November 2016 to January 2017, Chief Operating Officer of the Company from December 2008 to November 2016, Chief Scientific Officer from December 2004 to December 2008, Vice-President of Product Development from July 1999 to December 2004 and Chief Financial Officer from September 1999 to May 2000.	May 11, 2011

Name and Place of Residence	Position with the Company	Principal Occupation	Director of the Company Since
Andrew de Guttadauro California, USA	Global Head of Business Development, President, Oncolytics Biotech (U.S.) Inc.	<p>Andrew de Guttadauro has more than 25 years of biopharmaceutical commercialization and business development experience. He has held executive and senior-level positions at leading pharmaceutical and biotechnology companies, working on initiatives across both developed and emerging markets globally.</p> <p>Mr. de Guttadauro began his career at TAP Pharmaceuticals, supporting the launch of blockbuster drugs, Lupron® and Prevacid®. He held a variety of marketing positions at Amgen, contributing to the success of Enbrel®, Aranesp®, and Epogen® before joining MedImmune to lead marketing efforts for the FluMist® inhaled influenza vaccine. Following a two-year assignment overseeing the commercial development of Zevalin®, the first radioimmunotherapy product approved for use in the United States, Mr. de Guttadauro took on the role of Senior Director of Strategy at Biogen Idec. He then served as Vice President of Corporate Development at Vical, supporting the execution of distribution agreements for Allovectin®. Prior to joining Oncolytics, Mr. de Guttadauro was a Principal at 1798 Consultants Inc., a healthcare consulting firm providing commercialization, market access, and compliance strategic advice to leading and emerging biopharmaceutical companies.</p>	N/A
Allison Hagerman, P.Eng., PMP, MBT Alberta, Canada	Vice President, Product Development	<p>Mr. de Guttadauro has a Bachelor of Science degree in engineering from the United States Military Academy at West Point.</p> <p>A Professional Engineer focused on biotechnology, Ms. Hagerman joined Oncolytics in 2010 and has been integral to the progress of its product development program ever since. Prior to being appointed as Vice President of Product Development, Ms. Hagerman was the Director, Manufacturing and Engineering from 2013-2017 and Project Manager from 2010-2013, during which time she led the process performance qualification for pelareorep drug substance. Ms. Hagerman is a Professional Engineer (P.Eng., APEGA) and Project Management Professional (PMP, PMI). She holds a Master of Biomedical Technology (MBT) degree from the University of Calgary, and B.Sc. degrees in both Chemical Engineering and Biological Sciences.</p>	N/A
Angela Holtham, MBA, FCPA, FCMA, ICD.D ⁽¹⁾⁽²⁾ Ontario, Canada	Director	<p>Ms. Holtham held a number of financial positions over a 19-year career with the Canadian subsidiary of Nabisco Inc., rising to become Senior Vice President and Chief Financial Officer. Then in 2002, she joined Toronto, Ontario-based Hospital for Sick Children as Vice President, Finance and Chief Financial Officer, a position she held for eight years. Through her career she has participated in many initiatives ranging from traditional finance functions and operations oversight to intellectual property portfolio management and mergers and acquisitions. Ms.</p>	June 18, 2014

Holtham is an FCPA, FCMA, holds an MBA from the University of Toronto and has completed the Institute of Corporate Directors Designation (ICD.D). Ms. Holtham holds a number of board and audit committee positions in both private and public sectors, including audit committee chair and director of Jamieson Wellness Inc.

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Name and Place of Residence	Position with the Company	Principal Occupation	Director of the Company Since
Rita Laeufle, M.D., PhD California, USA	Chief Medical Officer	<p>Dr. Laeufle brings more than 15 years of experience in drug development in oncology, most recently serving as Vice President of Clinical Development & Medical Affairs at SFJ Pharmaceuticals where she developed a clinical program for a new drug substance class in colon cancer. Previously, Dr. Laeufle was Senior Vice President, Clinical Development of Oncology at Coherus Biosciences where she developed a biosimilar strategy for Avastin, prior to which she was Senior Medical Director, Global Medical Affairs at Clovis Oncology, where she led the Medical Affairs strategy for their PARP inhibitor, Rucaparib. Dr. Laeufle also served as Senior Medical Director, U.S. Medical Affairs, gastrointestinal (GI) cancers at Genentech where she led GI disease across molecules and indications, and as Senior PD Medical Director and Clinical Science Leader in Oncology at Roche, working with Avastin for the treatment of breast cancer where she successfully maintained approval for Avastin in first line metastatic breast cancer in combination with paclitaxel in Europe and ROW (rest of world). She was Senior Medical Scientific Expert of Immunology and Infectious Diseases and Senior Pharmacovigilance Leader, Oncology at Novartis and began her pharmaceutical career as PD Medical Director and Medical Monitor (International Study Manager), Altana Pharma.</p> <p>Dr. Laeufle, a surgical oncologist, completed her general surgery residency at Buckland Hospital in Dover, England, Basel Switzerland and Ueberlingen, Germany, and was trained as a surgical oncologist at Staedtisches Krankenhaus, Singen Germany, where she focused on gastroenterological, thyroid and breast cancer. Dr. Laeufle completed medical school at Medical School Albert Ludwig University Freiburg i.Br. Germany, where she received her Ph.D. in exploring Her2 oncogenes in brain cancer. Dr. Laeufle's work has been published in The Lancet Oncology, the European Journal of Cancer, the Journal of Hepatology and Human Pathology and she has had multiple posters presented at the American Society of Clinical Oncology (ASCO), the World Congress on Gastrointestinal Cancer (WCGC) and the European Society for Medical Oncology (ESMO).</p>	N/A
J. Mark Lievonen, CM, FCPA, FCA, MBA, LLD ⁽¹⁾⁽³⁾ Ontario, Canada	Director	<p>Mr. Lievonen held the position of President of Sanofi Pasteur Limited, a vaccine development, manufacturing and marketing company, from 1999 to 2016. He is a Director of Acerus Pharmaceuticals Corporation, Quest PharmaTech Inc., the Gairdner Foundation and Biome Grow Inc. Mr. Lievonen has served on a number of industry and not-for-profit boards including as the chair of Rx&D (now Innovative Medicines Canada), BIOTECCanada, and the Markham Stouffville Hospital Foundation, as Vice-Chair of the Ontario Institute for Cancer Research, as a Director of the Public Policy Forum, and as a Governor of York University. Mr. Lievonen was appointed to the Order of Canada in 2015, named a Chevalier de l'Ordre National de Mérite by the government of France in 2007, and inducted into the Canadian Healthcare Marketing Hall of Fame in 2013.</p>	April 5, 2004
Kirk J. Look, CA	Chief Financial Officer	<p>Mr. Look is a Chartered Accountant with more than fifteen years of experience in accounting, finance, tax and treasury. Mr. Look joined Oncolytics as the Company's Controller in April 2003, and assumed the role of Chief Financial</p>	N/A

Alberta,
Canada

Officer in November 2012. Prior to joining Oncolytics, from 2000 to April 2003, Mr. Look was Manager of Audit and Assurance Services with Ernst & Young LLP in Canada. From 1998 to the end of 1999, Mr. Look held the positions of Audit Manager and Senior Accountant at Ernst & Young LLP in Chile.

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Name and Place of Residence	Position with the Company	Principal Occupation	Director of the Company Since
Michael Moore California, USA	Vice President, Investor Relations & Corporate Communications	<p>Michael Moore has more than 20 years of experience in strategic communications and investor relations for the biotech industry, as well as personal finance. Before joining Oncolytics in February 2017, Mr. Moore spent 12 years at Equicom Investor Relations, where he advanced from Account Executive to Sr. Vice President and Manager of U.S. Operations where he worked with over 50 public and private biotech and medical device companies. Prior to Equicom, he was an Account Executive with Atkin + Associates and FleishmanHillard. Earlier roles in the financial community included responsibilities as a personal banker and an investment representative for both Scotiabank and London Life, respectively. Mr. Moore serves as treasurer and board member of the San Diego chapter of the National Investor Relations Institute (NIRI). He holds a Bachelor of Commerce with a focus on marketing and finance from Mount Allison University.</p>	N/A
Wayne Pisano, MBA ⁽³⁾⁽⁵⁾ USA	Chair of the Board, Pennsylvania	<p>Mr. Pisano has more than 30 years of experience as a pharmaceutical industry executive and was recognized in 2010 as Pharma Executive of the Year by the World Vaccine Congress. Mr. Pisano is the former president and CEO of Sanofi Pasteur, one of the largest vaccine companies in the world. He is credited with driving Sanofi Pasteur's leadership within the worldwide influenza market and capturing 50 percent of global sales. He also laid the foundation for the company's</p>	May 9, 2013

global pediatric vaccines strategy. During his tenure as CEO, Mr. Pisano bolstered the Sanofi Pasteur pipeline with the acquisitions of Acambis PLC, a bio-tech based in Boston in 2008 and Shantha Biotechnics, a highly regarded Indian vaccine company in 2010. Prior to joining Sanofi Pasteur, he spent 11 years with Novartis (formerly Sandoz). He has a bachelor's degree in biology from St. John Fisher College, New York and an MBA from the University of Dayton, Ohio. Mr. Pisano is a Board director for IMV, Inc., a biotech based in Halifax, a Board director for Provention Bio, a biotech based in New Jersey and a Board director for Altimmune Inc., a biotech based in Maryland.

Dr. Rice holds the position of Chairman, President and Chief Executive Officer of Aptose Biosciences Inc. since 2013. Also, from 2003 to present, he has served as Chairman, President and Chief Executive Officer of Cylene Pharmaceuticals Inc., prior to which he was the Founder, President, Chief Executive Officer and Director of Achillion Pharmaceuticals, Inc. He served as Senior Scientist and Head of the Drug Mechanism Laboratory at the National Cancer Institute-Frederick Cancer Research and Development Center, and as a faculty member in the Division of Pediatric Hematology and Oncology at Emory School of Medicine. Dr. Rice holds a PhD in biochemistry from Emory University and was a post-doctoral trainee in the Department of Internal Medicine, Division of Hematology and Oncology at the University of Michigan Medical Center.

William G. Rice, PhD⁽³⁾⁽⁴⁾
California, USA

Director

June 8,
2015

Bernd R. Seizinger, MD, PhD⁽²⁾⁽⁴⁾
New Jersey, USA and Munich, Germany

Director

Dr. Seizinger is currently Chairman and/or Board member of a number of biotech companies in the U.S. and Europe, including: Oxford June 8,
2015

BioTherapeutics Ltd., CryptoMedix Inc., Aprea AB, Vaccibody AS, and BioInvent AB. From 1998 to 2009, he served as President and Chief Executive Officer of GPC Biotech. He also served as Vice President of Oncology Drug Discovery and, in parallel, Vice President of Corporate and Academic Alliances at Bristol-Myers Squibb in Princeton, NJ. Prior to his appointments in the biotechnology and pharmaceuticals sectors, Dr. Seizinger held professorships and senior staff appointments at Harvard Medical School, Princeton University and Massachusetts General Hospital.

Notes:

- (1) Member of the Audit Committee. Ms. Holtham is Chair of this Committee.
- (2) Member of the Compensation Committee. Ms. Brown is Chair of this Committee.
- (3) Member of the Governance Committee. Mr. Lievonen is Chair of this Committee.
- (4) Member of the Science and Technology Committee. Dr.'s Rice and Seizinger serve as Co-Chairs of this Committee.

(5) Mr. Pisano, as Chair of the Board, serves as an ex-officio member of the Compensation, Audit, and Science and Technology Committees.

As at March 12, 2019, the directors and senior officers as a group beneficially owned, directly or indirectly, 88,135 of our common shares, representing 0.47% of the issued and outstanding common shares.

Certain of our directors are associated with other companies, which may give rise to conflicts of interest. In accordance with the Alberta Business Corporations Act (ABCA), directors who have a material interest in any person who is a party to a material contract or a proposed material contract with us are required, subject to certain exceptions, to disclose that interest and abstain from voting on any resolution to approve that contract. In addition, the directors are required to act honestly and in good faith with a view to the best interests of Oncolytics Biotech Inc.

None of our directors have been a director or officer of a company that went bankrupt in the last 10 years.

None of our directors or officers are related by blood, marriage or adoption to any other director or officer.

We are not aware of any arrangement or understanding with major shareholders, customers, suppliers or others, pursuant to which any person referred to above was selected as a director or officer.

B. Compensation

Directors

The following table sets forth information concerning the total compensation paid in 2018 to each director.

Name	Fees Earned (\$) ⁽¹⁾⁽³⁾	Share-Based Awards (\$) ⁽²⁾⁽³⁾	Option-Based Awards (\$) ⁽²⁾	Non-Equity Incentive Plan Compensation (\$)	Pension Value (\$)	All Other Compensation (\$)	Total (\$)
Deborah Brown	75,031	26,110	Nil	Nil	N/A	Nil	101,141
Angela Holtham ⁽⁴⁾	57,637	56,163	Nil	Nil	N/A	Nil	113,800
Mark Lievonen	81,852	26,110	Nil	Nil	N/A	Nil	107,962
Wayne Pisano ⁽⁵⁾	55,250	91,509	Nil	Nil	N/A	Nil	146,759
William Rice	81,852	26,110	Nil	Nil	N/A	Nil	107,962
Bernd Seizinger ⁽⁶⁾	—	105,384	Nil	Nil	N/A	Nil	105,384

Notes:

(1) Directors are paid fees in US Dollars. These amounts are presented in Canadian dollars and have been converted at a US/CDN exchange rate of \$1.3642.

(2) The value of share based and option based awards are based on the grant date assumptions as disclosed in note 8 "Share Based Payments" in our 2018 audited consolidated financial statements.

(3) Directors, annually, may opt to take up to 100% of their respective annual retainer in restricted share awards.

(4) Ms. Holtham elected to receive U.S.\$22,750 (35%) of her annual retainer in restricted share awards.

(5) Mr. Pisano elected to receive U.S.\$49,500 (55%) of his annual retainer in restricted share awards.

(6) Dr. Seizinger elected to receive U.S.\$60,000 (100%) of his annual retainer in restricted share awards.

Officers

Summary Compensation Table

The following table sets forth information concerning the total compensation paid to our officers in 2018.

Name and principal position	Year	Salary \$	Share-based awards \$(1)	Option-based awards \$(1)	Bonus \$	Non-equity incentive plan compensation \$	Pension value \$	All other compensation \$(2)	Total compensation \$
Dr. Matthew C. Coffey ⁽³⁾ Chief Executive Officer	2018	475,000	—	799,717	213,750	N/A	N/A	66,168	1,554,635
Kirk J. Look Chief Financial Officer	2018	365,000	—	333,582	131,400	N/A	N/A	57,093	887,075
Dr. Rita Laeufle ⁽⁴⁾⁽⁵⁾ Chief Medical Officer	2018	92,084	—	106,253	99,450	N/A	N/A	16,176	313,963
Andrew de Guttadauro ⁽⁴⁾ President, Oncolytics Biotech (US) Inc.	2018	345,143	—	104,090	77,657	N/A	N/A	17,376	544,266
Dr. Andres A. Gutierrez ⁽⁴⁾⁽⁶⁾ Chief Medical Officer	2018	161,986	—	32,027	—	N/A	N/A	2,145	196,158
Allison Hagerman Vice President, Product Development	2018	185,000	—	87,009	41,700	N/A	N/A	34,513	348,222
Michael Moore ⁽⁴⁾ Vice President, Investor Relations & Corporate Communications	2018	345,143	—	96,706	77,657	N/A	N/A	35,168	554,674

Notes:

(1) The value of share and option based awards are based on the grant date assumptions as disclosed in note 8 "Share Based Payments" in our 2018 audited consolidated financial statements.

(2) The dollar amounts set forth under this column are related to contributions to the officers' respective retirement savings plan and amounts provided for health care benefits by the Company.

(3) None of the compensation paid to Dr. Coffey related to his role as a director of the Company.

US Employees are paid salaries, bonuses and other compensation in US Dollars. These amounts are presented in

(4) Canadian dollars and have been converted at a US/CDN exchange rate of \$1.3642, \$1.2545 and \$1.3427 for the years 2018, 2017 and 2016, respectively.

(5) Dr. Laeufle was appointed as the Chief Medical Officer on November 29, 2018.

(6) Dr. Gutierrez resigned from his position as Chief Medical Officer effective April 23, 2018.

Narrative Discussion

We have entered into employment agreements with each of the following Executive Officers (each an "Employment Agreement"). The following base salaries for 2019 were approved by the Board of Directors:

Name and principal position	Year	Salary \$
Dr. Matthew C. Coffey Chief Executive Officer	2019	525,000
Kirk J. Look, C.A. Chief Financial Officer	2019	385,000
Dr. Rita Laeufle ⁽¹⁾ Chief Medical Officer	2019	405,000
Andrew de Guttadauro ⁽¹⁾ President, Oncolytics Biotech (US) Inc.	2019	290,950
Allison Hagerman Vice President, Product Development	2019	200,000
Michael Moore ⁽¹⁾ Vice President, Investor Relations & Corporate Communications	2019	260,084

Note 1: US Employees are paid in US Dollars and salaries above for those US employees are presented in US dollars.

Further, each Executive Officer is entitled to additional benefits and performance-based bonuses. As well, the Employment Agreements provide that each Executive Officer is subject to certain confidentiality and non-competition restrictions during and following the course of their respective employment with the Company. Each Employment Agreement shall continue until terminated by either party in accordance with the notice provisions thereof.

The Company does not provide pension plan benefits to its Executive Officers and employees. The Company does not currently have a stock appreciation rights plan.

Termination of Employment or Change of Control

The following table reflects amounts payable to the Executive Officers based on each Executive Officer's employment agreement assuming that their employment was terminated on December 31, 2018 without cause or due to a change of control of the Company.

Name	Termination without Cause Severance ⁽¹⁾ \$	Change of Control Severance ⁽²⁾ \$
Dr. Matthew C. Coffey Chief Executive Officer	595,563	1,191,125
Kirk J. Look, C.A. Chief Financial Officer	444,013	888,025
Dr. Rita Laeufle ⁽³⁾ Chief Medical Officer	211,196	211,196
Andrew de Guttadauro ⁽³⁾ President, Oncolytics Biotech (US) Inc.	150,353	601,412
Allison Hagerman	118,625	237,250

Vice President, Product Development

Michael Moore⁽³⁾

Vice President, Investor Relations & Corporate Communications 137,763 275,526

Notes:

As at December 31, 2018, all options granted to Officers had fully vested except for the options granted on February 20, 2017, July 3, 2017, March 8, 2018, July 9, 2018, November 19, 2018, November 29, 2018 and (1) December 14, 2018. As a result, all Officers shall be entitled to exercise all or any part of their vested Options, within the period ending on the earlier of the date of expiration of the Option and the 90th day after the date such Officer is terminated unless otherwise approved by the Board of Directors.

On a change of control of the Company, the Officers shall be entitled to exercise all or a part of their Options, (2) whether vested or not, within the period ending on the earlier of the date of expiration of the Option and the 90th day after the date such Officer is terminated.

(3) US Employees are paid in US Dollars and are presented in US dollars.

C. Board Practices

Our directors are elected by the shareholders at each Annual General Meeting (or Annual Special Meeting) and typically hold office until the next meeting, at which time they may be re-elected or replaced. Casual vacancies on the board are filled by the remaining directors and the persons filling those vacancies hold office until the next Annual General Meeting (or Annual Special Meeting), at which time they may be re-elected or replaced. The officers are appointed by the Board of Directors and hold office indefinitely at the pleasure of the Board of Directors.

Name and Place of Residence	Position with the Corporation	Director of the Corporation Since	Date of Expiration of Current Term of Office
Matthew C. Coffey, PhD, MBA Alberta, Canada	President and Chief Executive Officer and Director	May 11, 2011	Date of 2019 Annual General Meeting of the Shareholders
Deborah Brown, BSc, MBA Ontario, Canada	Director	November 2, 2017	Date of 2019 Annual General Meeting of the Shareholders
Angela Holtham, MBA, FCPA, FCMA, ICD.D Ontario, Canada	Director	June 18, 2014	Date of 2019 Annual General Meeting of the Shareholders
J. Mark Lievonen, CM, FCPA, FCA, MBA, LLD Ontario, Canada	Director	April 5, 2004	Date of 2019 Annual General Meeting of the Shareholders
Wayne Pisano, MBA New Jersey, USA	Chair and Director	May 9, 2013	Date of 2019 Annual General Meeting of the Shareholders
William G. Rice, PhD California, USA	Director	June 8, 2015	Date of 2019 Annual General Meeting of the Shareholders
Bernd R. Seizinger, MD, PhD New Jersey, USA and Munich Germany	Director	June 8, 2015	Date of 2019 Annual General Meeting of the Shareholders

Directors' Contracts

We receive a director's consent from each of the independent directors upon their acceptance of their director's position. We also enter into an Indemnity Agreement and Directors Confidentiality and Intellectual Property Assignment Agreement with each director.

The Company does not have any contracts with any of its directors which provide for benefits upon the termination of employment.

Compensation of Directors

Each director who is not a salaried employee of the Company is entitled to the following fees:

Annual Retainer

Each director receives a base retainer of US\$40,000. In addition to the base retainer directors are eligible to receive the following additional fees depending on committee involvement:

Additional Retainers (USD):

Board chair	\$40,000	
Audit Committee chair	\$20,000	
Governance & Compensation Committee chair	\$10,000	
Science & Technology co-chair	\$15,000	
Non-chair member of the Audit Committee	\$10,000	
Non-chair member of the Governance or Compensation Committee	\$ 5,000	

Directors, annually, may opt to take up to 100% of their respective annual retainer in restricted share awards.

Restricted Share Units

In addition to the combined retainer, the Corporation will grant annual restricted share awards that will vest immediately (2018 - over three years). For 2019, the annual award has been increased to \$30,000 (2018 - \$20,000). The annual restricted share unit award will be granted on or about October 1 of each year.

We also grant to directors, from time to time, stock options in accordance with the Option Plan and the reimbursement of any reasonable expenses incurred by them while acting in their directors' capacity. During the year ended December 31, 2018, total compensation of \$683,008 was paid to the independent directors which consisted of fee payments of \$351,622, share based awards of \$331,386 and option based awards of nil.

Compensation Committee

The Corporation has formed a compensation committee (the "Compensation Committee") in accordance with Rule 5605(d)(1) of the Nasdaq Capital Market which consists of four outside, independent directors, Dr. Seizinger, Ms. Holtham, Ms. Brown, and Mr. Pisano, the Chair of the Board, each of whom is independent in accordance with Rule 5605(a)(2) and Rule 5605(d)(2)(A) of the Nasdaq Capital Market. Ms. Brown is the Chair of the Compensation Committee. No member of the Compensation Committee has been an employee or officer of the Company or any of its affiliates.

The objectives of the Corporation's compensation arrangements are: (i) to attract and retain key personnel; (ii) to encourage commitment to the Corporation and its goals; (iii) to align executive interests with those of its shareholders; and (iv) to reward executives for performance in relation to overall corporate progress goals.

The key elements of the compensation program are the base salary, health benefits, and payments allocated to employees to be directed by them to their personal retirement accounts. Bonuses and the granting of Options (as defined herein) and Share Awards (as defined herein) are also part of the Corporation's compensation program and are based on corporate performance. Part of corporate performance includes goals and objectives that are determined based on the strategic planning and budgeting process, which is conducted at least annually. The elements of the compensation plan are intended to reward performance, and the various elements are intended to provide a blend of short-term and long-term incentives to align the interests of management and the shareholders.

In arriving at its recommendations for compensation, the Compensation Committee considers the long-term interests of the Corporation as well as its current stage of development and the economic environment within which it operates. The market for biotechnology companies in the development phase is challenging. Based on these factors, the Compensation Committee recognized the need to strike a balance between compensation to retain employees and resources expended to maintain operations. In the past, the Compensation Committee has engaged specialist consultants to assist in benchmarking its compensation practices and provide recommendations to the committee with respect to compensation for directors and officers. In 2018, the Compensation Committee engaged Radford, an Aon Hewitt Company as a specialist consultant to assist with the benchmarking of director compensation for 2019.

Following a review of the risks in the Corporation's compensation policies and practices, the Compensation Committee found no risks that are reasonably likely to have a material adverse effect on the Corporation. The Compensation Committee's role of approving the compensation policies and practices includes considering whether the compensation policies and practices could encourage an officer of the Company to take inappropriate or excessive risks.

Under the Corporation's corporate trading policy, insiders (including officers and directors) are not permitted to hedge their position in Common Shares, Options, Share Awards, deferred share units, performance share units, debentures or other debt instruments by use of any financial instrument, which would include but is not limited to options, puts, calls, warrants or short sells, designed to benefit the holder from a change in the market value of the Common Shares

of the Corporation.

For 2018, the following guidelines were employed by the Board in granting bonuses, Options and Share Awards to the Corporation's executive and senior officers.

Annual Bonus, Option Grants and Share Award Grants

The Chief Executive Officer of the Corporation is eligible for a cash bonus of up to 50% of his base salary, the Chief Financial Officer and the Chief Medical Officer are each eligible for a cash bonus of up to 40% of his/her base salary and the other senior officers are eligible for a cash bonus of up to 30% of their respective base salaries. In addition, when available, the officers are eligible for a combination of Option and Share Award grants. The amount of each grant is determined and approved by the Board with the actual bonus provided and the number of Options and Share Awards granted based upon the overall performance of the

Corporation as assessed by the Compensation Committee and approved by the Board. The overall performance of the Corporation is determined by the annual goals and objectives approved by the Board and includes specific objectives with respect to the clinical, manufacturing, and intellectual property plans in combination with financial goals.

Previous grants are taken into account when considering new grants of Options and Share Awards.

Compensation Committee Mandate

1. Policy Statement

It is the policy of Oncolytics Biotech Inc. (the "Corporation") to establish and maintain a Compensation Committee (the "Committee"), composed entirely of independent directors, to assist the Board of Directors of the Corporation (the "Board") in carrying out its responsibility for the Corporation's human resources and compensation policies and processes. The Committee will be provided with resources commensurate with the duties and responsibilities assigned to it by the Board, including administrative support. If determined necessary by the Committee, it will have the discretion to investigate and conduct reviews of any human resource or compensation matter including the standing authority to retain experts and special counsel. In the event of a conflict of interest or potential conflict of interest involving one or more of the directors or members of management, the Committee may modify the procedures and requirements set out in this Mandate restrict communication and sharing of information to independent directors or otherwise take reasonable measures to manage the conflict of interest or potential conflict of interest.

2. Composition of Committee

(a) The Committee shall consist of a minimum of three (3) directors. The Board shall appoint the members ("Members") of the Committee and may seek the advice and assistance of the Governance Committee in identifying qualified candidates. The Board shall appoint one Member of the Committee to be the Chair of the Committee, or delegate such authority to appoint the Chair of the Committee to the Committee.

(b) The Chair of the Committee shall be responsible for the leadership of the Committee, including preparing or approving the agenda, presiding over the meetings, and making committee assignments.

Each director appointed to the Committee by the Board shall be an outside director who is unrelated. An outside, unrelated director is a director who meets the requirements of NASDAQ Rule 5605 (a)(2) and 5605(d)(2) and National Instrument 58-101 who is independent of management and is free from any interest, any business or other relationship which could, or could reasonably be perceived, to materially interfere with the director's ability to be independent of management and to act with a view to the best interests of the Corporation, including, but not limited to the source of compensation of such director, including any consulting, advisory or other compensatory fee paid by the Corporation to such director and whether such director is affiliated with the Corporation, a subsidiary of the Corporation or an affiliate of a subsidiary of the Corporation other than interests and relationships arising from shareholding. In determining whether a director is independent of management, the Board shall make reference to the then current legislation, rules, policies and instruments of applicable regulatory authorities.

(c) Each Member shall be appointed by the Board annually at the next scheduled meeting of the Board following the AGM. The Members will be appointed to hold office until the next annual general meeting of shareholders or until their successors are appointed. The Board may remove a Member at any time and may fill any vacancy occurring on the Committee. A Member may resign at any time and a Member will automatically cease to be a Member upon ceasing to be a director.

(e) The Chair of the Board shall be an ex officio Member of the committee.

3. Meetings of the Committee

(a) The Committee shall meet a minimum of twice per year at such time and place as may be designated by the Chair of the Committee and whenever a meeting is requested by the Board, a Member of the Committee, or the Chief Executive Officer of the Corporation (the "CEO").

Notice of each meeting of the Committee shall be given to each Member of the Committee. The CEO shall attend (b) each meeting of the Committee whenever requested to do so by a Member of the Committee. The CEO may not be present during voting or deliberations on his or her compensation.

(c) Notice of a meeting of the Committee shall:

(i) be in writing, including by electronic communication facilities;

(ii) state the nature of the business to be transacted at the meeting in reasonable detail;

(iii) to the extent practicable, be accompanied by copies of documentation to be considered at the meeting; and

- (iv) be given at least two business days prior to the time stipulated for the meeting or such shorter period as the Members of the Committee may permit.
- (d) A quorum for the transaction of business at a meeting of the Committee shall consist of a majority of the Members of the Committee.
 - A Member or Members of the Committee may participate in a meeting of the Committee by means of such telephonic, electronic or other communication facilities, as permits all persons participating in the meeting to communicate adequately with each other. A Member participating in such a meeting by any such means is deemed to be present at the meeting.
- (e) In the absence of the Chair of the Committee, the Members of the Committee shall choose one of the Members present to be Chair of the meeting. If the Board has appointed a Corporate Secretary, the Corporate Secretary shall be the secretary of the meeting. If the Board has not appointed a Corporate Secretary, the Members of the Committee shall choose one of the persons present to be the secretary of the meeting or may have another person who is not a Member of the Committee present to record the minutes of the meeting.
 - Minutes shall be kept of all meetings of the Committee and shall be signed by the Chair and the secretary of the meeting. Minutes of the meetings of the Committee shall be distributed to members of the Committee, to other members of the Board and, with the exception of "in camera" items, to the Chief Executive Officer and Chief Financial Officer. Notwithstanding the foregoing, distribution of minutes of meetings or parts thereof may be restricted to independent directors in the event of a conflict of interest or potential conflict of interest or if otherwise necessary for the Committee to properly discharge its responsibilities, but only for as long as is reasonably necessary.

4. Duties and Responsibilities of the Committee

- (a) The Committee shall, at the earliest opportunity after each meeting, report to the Board the results of its activities and any reviews undertaken and make recommendations to the Board as deemed appropriate.
- (b) The Committee's primary duties and responsibilities are to review and make recommendations to the Board in respect of:
 - human resource policies, practices and structures (to monitor consistency with the Corporation's goals and near and long-term strategies, support of operational effectiveness and efficiency, and maximization of human resources potential);
 - (i) compensation policies and guidelines;
 - (ii) management incentive and perquisite plans and any non-standard remuneration plans;
 - (iii) senior management, executive and officer appointments and their compensation;
 - (iv) management succession plans, management training and development plans, termination policies and termination arrangements; and
 - (v) Board compensation matters.
- (c) In carrying out its duties and responsibilities, the Committee shall:
 - annually assess and make a recommendation to the Board with regard to the competitiveness and appropriateness of the compensation package of the CEO, all other officers of the Corporation and such other key employees of the Corporation or any subsidiary of the Corporation as may be identified by the CEO and approved by the Committee (collectively, the "Designated Employees");
 - (i) annually review the performance goals and criteria for the CEO and evaluate the performance of the CEO against such goals and criteria and recommend to the Board the amount of regular and incentive compensation to be paid to the CEO;
 - (ii) annually, review and make a recommendation to the Board regarding the CEO's performance evaluation of Designated Employees and the CEO's recommendations with respect to the amount of regular and incentive compensation to be paid to such Designated Employees;

- review and make a recommendation to the Board regarding any employment contracts or arrangements with each
- (iv) of the Designated Employees, including any retiring allowance arrangements or any similar arrangements to take effect in the event of a termination of employment;
 - (v) periodically, review the compensation philosophy statement of the Corporation and make recommendations for change to the Board as considered necessary;
 - (vi) from time to time, review and make recommendations to the Board in respect of the design, benefit provisions, investment options and text of applicable pension, retirement and savings plans or related matters;
 - (vii) annually, in conjunction with the Corporation's general and administrative budget, review and make recommendations to the Board regarding compensation guidelines for the forthcoming budget period;

- (viii) when requested by the CEO, review and make recommendations to the Board regarding short term incentive or reward plans and, to the extent delegated by the Board, approve awards to eligible participants;
 - (ix) review and make recommendations to the Board regarding incentive stock option plans or any other long term incentive plans and to the extent delegated by the Board, approve grants to participants and the magnitude and terms of their participation;
 - (x) as required, fulfill the obligations assigned to the Committee pursuant to any other employee benefit plans approved by the Board;
 - (xi) annually, prepare or review the report on executive compensation required to be disclosed in the Corporation's information circular or any other human resource or compensation matter required to be publicly disclosed by the Corporation;
 - (xii) annually, review and make a recommendation to the Board regarding the compensation of the Board of Directors; as determined in the sole discretion of the Committee, retain independent advice in respect of human resources and compensation matters from a compensation consultant, legal counsel or other advisor (the "Advisor") and, if
 - (xiii) deemed necessary by the Committee, meet separately with the Advisor; the Committee shall be directly responsible for the appointment, compensation and oversight of the work of the Advisor retained by the Committee;
 - (xiv) select, or receive advice from, an Advisor to the Committee, other than in-house legal counsel, after taking into consideration the following factors:
 - (i) the provision of other services to the Corporation by the entity that employs the Advisor ;
 - (ii) the amount of fees received from the Corporation by the entity that employs the Advisor, as a percentage of the total revenue of the entity that employs the Advisor;
 - (iii) the policies and procedures of the entity that employs the Advisor that are designed to prevent conflicts of interest;
 - (iv) any business or personal relationship of the Advisor with a member of the Board;
 - (v) any stock of the Corporation owned by the Advisor; and
 - (vi) any business or personal relationship of the Advisor or the entity employing the Advisor with an executive officer of the Corporation;provided however, none of the above factors shall prevent the Committee from retaining any Advisor as the Committee deems appropriate, in its sole discretion, after consideration of the above factors.
 - (xv) review and consider the implications of the risks associated with the Corporation's compensation policies and practices, specifically, situations that could potentially encourage an insider to expose the Corporation to inappropriate or excessive risks; and
 - (xvi) assess, on an annual basis, the adequacy of this Mandate and the performance of the Committee.
- In addition to the foregoing, the Committee shall undertake on behalf of the Board such other initiatives as may be necessary or desirable to assist the Board in discharging its responsibility for the Corporation's human resources
- (d) development, performance evaluation, compensation and succession planning programs are in place and operating effectively.
 - (e) The Committee shall assess, on an annual basis, the adequacy of this Mandate and the performance of the Committee.

5. Reporting

The Committee shall, at the earliest opportunity after each meeting, report to the Board the results of its activities and any reviews undertaken and make recommendations to the Board as deemed appropriate. The Committee may restrict such reports to independent directors in the event of a conflict of interest or potential conflict of interest or if otherwise necessary for the Committee to properly discharge its responsibilities, but only for as long as is reasonably necessary.

6. External Advisors

If, in order to properly discharge its function, duties and responsibilities, it is necessary, in the opinion of the Committee that the Committee obtains the advice and counsel of external advisors, the Chair shall, at the request of the Committee, engage the necessary experts. The Committee shall be directly responsible for the appointment, compensation and oversight of the work of any compensation consultant, legal counsel, and other advisor retained by the Committee. The Corporation will provide adequate funding, as determined by the Committee, for payment of such external advisors. The Committee will only engage a compensation consultant, legal counsel or other external advisor after taking into consideration the factors set forth in NASDAQ Rule 5605 (d)(3)(D) (See Appendix A). The Committee shall keep the Board apprised of both the selection of experts and the expert's findings

through the Committee's regular reports to the Board. The Committee may restrict such reports to independent directors in the event of a conflict of interest or potential conflict of interest or if otherwise necessary for the Committee to properly discharge its responsibilities, but only for as long as is reasonably necessary.

7. Date of Mandate

This Mandate was last reviewed, amended and approved by the Board on March 7, 2019.
Audit Committee

The Corporation has formed an Audit Committee in accordance with Section 3(a)(58)(A) of the United States Securities Exchange Act of 1934, as amended ("Exchange Act"), consisting of four independent directors pursuant to the Rule 5605(a)(2) and Rule 5605(c)(2) of the Nasdaq Capital Market and Rule 10A-3 of the Exchange Act: Ms. Brown, Ms. Holtham, Mr. Lievonen and Mr. Pisano, none of whom are nor have been employees or officers of the Company or any of its affiliates. Ms. Holtham is presently the Chair of the Audit Committee. Each Audit Committee member is financially literate.

Audit Committee Mandate

1. Policy Statement

It is the policy of Oncolytics Biotech Inc. (the "Corporation") to establish and maintain an Audit Committee, composed entirely of independent directors, to assist the Board of Directors (the "Board") in carrying out their oversight responsibility for the Corporation's internal controls, financial reporting and financial risk management processes. The Audit Committee will be provided with resources commensurate with the duties and responsibilities assigned to it by the Board including administrative support. If determined necessary by the Audit Committee, it will have the discretion to institute investigations of improprieties, or suspected improprieties within the scope of its responsibilities, including the standing authority to retain special counsel or experts. In the event of a conflict of interest or potential conflict of interest involving one or more of the directors or members of management, the Audit Committee may modify the procedures and requirements set out in this Mandate restrict communication and sharing of information to independent directors or otherwise take reasonable measures to manage the conflict of interest or potential conflict of interest.

2. Composition of the Committee

- The Audit Committee shall consist of a minimum of three (3) directors. The Board shall appoint the members ("Members") of the Audit Committee and may seek the advice and assistance of the Governance Committee in
- (a) identifying qualified candidates. The Board shall appoint one Member of the Audit Committee to be the Chair of the Audit Committee, or delegate such authority to appoint the Chair of the Audit Committee to the Audit Committee.
 - (b) The Chair of the Committee shall be responsible for leadership of the Committee, including preparing or approving the agenda, presiding over the meetings, and making committee assignments.
 - (c) Each director appointed to the Audit Committee by the Board shall be an outside director who is unrelated and independent. An outside, unrelated and independent director is a director who meets the requirements of NASDAQ Rule 5605(a)(2) and National Instrument 52-110. A director appointed to the audit committee shall also meet the requirements of NASDAQ Rule 5605(c)(2) and Rule 10A-3(b)(1) of the United States Securities Exchange Act of 1934, as amended. Such director shall be independent of management and free from any interest, any business or other relationship which could, or could reasonably be perceived, to materially interfere with the director's ability to act with a view to the best interests of the Corporation, other than interests and relationships arising from shareholding. In determining whether a director is independent of management, the Board shall make reference to the abovementioned rules and any applicable revisions thereto, and any additional relevant and then current

legislation, rules, policies and instruments of applicable regulatory authorities.

(d) Each Member of the Audit Committee shall be financially literate. In order to be financially literate, a director must be, at a minimum, able to read and understand financial statements that present a breadth and level of complexity of accounting issues that are generally comparable to the breadth and complexity of the issues that can reasonably be expected to be raised by the Corporation's financial statements. At least one Member shall have accounting or related financial management expertise, meaning the ability to analyze and interpret a full set of financial statements, including the notes attached thereto, in accordance with generally accepted accounting principles and shall be a "financial expert" as defined in Item 407 of Regulation S-K promulgated by the U.S. Securities and Exchange Commission and "financially sophisticated" as defined in NASDAQ Rule 5605(c)(2).

In determining whether a Member of the Audit Committee is financially literate or has accounting or related (e) financial expertise, reference shall be made to the then current legislation, rules, policies and instruments of applicable regulatory authorities.

Each Member of the Audit Committee shall be appointed by the Board annually at the next scheduled meeting of the Board following the AGM. The Members will be appointed to hold office until the next annual general meeting (f) of shareholders or until their successors are appointed. The Board may remove a Member at any time and may fill any vacancy occurring on the Audit Committee. A Member may resign at any time and a Member will automatically cease to be a Member upon ceasing to be a director.

(g) The Chair of the Board shall be an ex officio Member of the committee.

3. Meetings of the Committee

The Audit Committee shall convene a minimum of four times each year at such times and places as may be designated by the Chair of the Audit Committee and whenever a meeting is requested by the Board, a Member of (a) the Audit Committee, the auditors, or senior management of the Corporation. Scheduled meetings of the Audit Committee shall correspond with the review of the year-end and quarterly financial statements and management discussion and analysis.

Notice of each meeting of the Audit Committee shall be given to each Member of the Audit Committee and to the (b) auditors, who shall be entitled to attend each meeting of the Audit Committee and shall attend whenever requested to do so by a Member of the Audit Committee.

(c) Notice of a meeting of the Audit Committee shall:

(i) be in writing, including by electronic communication facilities;

(ii) state the nature of the business to be transacted at the meeting in reasonable detail;

(iii) to the extent practicable, be accompanied by copies of documentation to be considered at the meeting; and

(iv) be given at least two business days prior to the time stipulated for the meeting or such shorter period as the Members of the Audit Committee may permit.

A quorum for the transaction of business at a meeting of the Audit Committee shall consist of a majority of the (d) Members of the Audit Committee. However, it shall be the practice of the Audit Committee to require review, and, if necessary, approval of certain important matters by all Members of the Audit Committee.

A Member or Members of the Audit Committee may participate in a meeting of the Audit Committee by means of (e) such telephonic, electronic or other communication facilities, as permits all persons participating in the meeting to communicate adequately with each other. A Member participating in such a meeting by any such means is deemed to be present at the meeting.

In the absence of the Chair of the Audit Committee, the Members of the Audit Committee shall choose one of the Members present to be Chair of the meeting. If the Board has appointed a Corporate Secretary, the Corporate (f) Secretary shall act as the secretary of the meeting. If the Board has not appointed a Corporate Secretary, the Members of the Committee shall choose one of the persons present to be the secretary of the meeting or may have another person who is not a Member of the Committee present to record the minutes of the meeting.

A member of the Board, senior management of the Corporation and other parties may attend meetings of the Audit Committee; however the Audit Committee (i) shall, at each meeting, meet with the external auditors independent (g) of other individuals other than the Audit Committee; (ii) may exclude: (A) management, (B) directors who are not independent directors, or (C) any party that has a conflict of interest or potential conflict of interest, from part or all of a meeting of the Audit Committee if reasonably necessary for the Audit Committee to properly discharge its responsibilities; and (iii) may meet separately with management.

(h) The Chief Executive Officer and the Chief Financial Officer shall each attend meetings of the Audit Committee when requested to do so by a Member of the Audit Committee.

(i) Minutes shall be kept of all meetings of the Audit Committee and shall be signed by the Chair and the secretary of the meeting. Minutes of the meetings of the Audit Committee shall be distributed to Members of the Audit

Committee, to other members of the Board and, with the exception of “in camera” items, to the Chief Executive Officer and Chief Financial Officer. Notwithstanding the foregoing, distribution of minutes of meetings or parts thereof may be restricted to independent directors in the event of a conflict of interest or potential conflict of interest or if otherwise necessary for the Audit Committee to properly discharge its responsibilities, but only for as long as is reasonably necessary.

4. Duties and Responsibilities of the
Committee

(a) The Audit Committee’s primary duties and responsibilities are to:

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- (i) identify and monitor the management of the principal risks that could impact the financial reporting of the Corporation;
 - (ii) monitor the integrity of the Corporation's financial reporting process and system of internal controls regarding financial reporting and accounting compliance;
 - monitor the independence and performance of the Corporation's external auditors. This will include receipt, review and evaluation, at least annually, of a formal written statement from the independent auditors confirming their independence, and qualifications, including their compliance with the requirements of the relevant oversight boards and actively engage in a dialogue with the auditors with respect to any disclosed relationships or services that may impact objectivity and independence of the auditors and take, or recommend that the full board take, appropriate action to oversee the independence of the external auditors;
 - (iii) deal directly with the external auditors to pre-approve external audit plans, other services (if any) and fees;
 - (iv) directly oversee the external audit process and results (in addition to items described in Section 4(d) below);
 - (v) provide an avenue of communication among the external auditors, management and the Board;
 - (vi) carry out a review designed to ensure that an effective "whistle blowing" procedure exists to permit stakeholders to express any concerns to an appropriately independent individual;
 - (vii) pre-approve any related party transactions to be entered into by the Company, and ensure appropriate disclosure thereof;
 - (viii) ensure financial disclosure incorporates inclusion of any material correcting adjustments required by the external auditors; and
 - (ix) require and ensure that the external auditors are directly responsible to the Audit Committee, to whom they report.
- (b) The Audit Committee shall have the authority to:
- (i) inspect any and all of the books and records of the Corporation and its affiliates;
 - (ii) discuss with the management of the Corporation and its affiliates, any affected party and the external auditors, such accounts, records and other matters as any Member of the Audit Committee considers necessary and appropriate; engage independent counsel and other advisors as it determines necessary to carry out its duties. The Audit Committee shall keep the Board apprised of both the selection of experts and the expert's findings through the
 - (iii) Audit Committee's regular reports to the Board. The Audit Committee may restrict such reports to independent directors in the event of a conflict of interest or potential conflict of interest or if otherwise necessary for the Audit Committee to properly discharge its responsibilities, but only for as long as is reasonably necessary;
 - (iv) communicate directly with the external auditors; and
 - set and pay the compensation for (A) any external auditor engaged for the purpose of preparing or issuing an audit report or performing other audit, review, or attest services for the Corporation, (b) any advisors employed by the Audit Committee, and (C) ordinary administrative expenses of the Audit Committee.
- The Audit Committee shall, at the earliest opportunity after each meeting, report to the Board the results of its activities and any reviews undertaken and make recommendations to the Board as deemed appropriate. The Audit
- (c) Committee may restrict such reports to independent directors in the event of a conflict of interest or potential conflict of interest or if otherwise necessary for the Audit Committee to properly discharge its responsibilities, but only for as long as is reasonably necessary.
 - (d) The Audit Committee shall:
 - (i) review the audit plan with the Corporation's external auditors and with management;
 - (ii) review with the independent auditors the matters required to be discussed relating to the conduct of the audit, including (a) the proposed scope of their examination, with emphasis on accounting and financial areas where the Committee, the independent auditors or management believes special attention should be directed; (b) the results of their audit, including their audit findings report and resulting letter, if any, of recommendations for management;
 - (c) their evaluation of the adequacy and effectiveness of the Company's internal controls over financial reporting;
 - (d) significant areas of disagreement, if any, with management; (e) co-operation received from management in the conduct of the audit; (f) significant accounting, reporting, regulatory or industry developments affecting the

Company; and (g) any proposed changes in major accounting policies or principles proposed or contemplated by the independent auditors or management, the presentation and impact of material risks and uncertainties and key estimates and judgements of management that may be material to financial reporting;

- (iii) review with management and with the external auditors material financial reporting issues arising during the most recent fiscal period and the resolution or proposed resolution of such issues;
- review any problems experienced or concerns expressed by the external auditors in performing an audit, including
- (iv) any restrictions imposed by management or material accounting issues on which there was a disagreement with management;
- (v) review with senior management the process of identifying, monitoring and reporting the principal risks affecting financial reporting;
 - review audited annual financial statements (including management discussion and analysis) and related documents in conjunction with the report of the external auditors and obtain an explanation from management of all material variances between comparative reporting periods. Without restricting the
 - (vi) generality of the foregoing, the committee will discuss with management and the independent auditors to the extent required, any issues and disclosure requirements regarding (a) the use of “pro forma” or “adjusted” non-GAAP information, as well as financial information and earnings guidance provided to analysts and rating agencies, (b) any off balance sheet arrangements, and (c) any going concern qualification.
 - consider and review with management, the internal control memorandum or management letter containing the
 - (vii) recommendations of the external auditors and management’s response, if any, including an evaluation of the adequacy and effectiveness of the internal financial controls of the Corporation and subsequent follow-up to any identified weaknesses;
 - review with financial management and the external auditors the quarterly unaudited financial statements, management discussion and analysis, letter to shareholders and press release (all to be considered the “Quarterly
 - (viii) Financial Reports”) and recommend the Quarterly Financial Reports to the Board for approval by the Board before release to the public;
 - before release, review and if appropriate, recommend for approval by the Board, all public disclosure documents containing audited or unaudited financial information, including any prospectuses, financial statements, including
 - (ix) the notes thereto, annual reports, annual information forms, management discussion and analysis and press releases; and
 - (x) oversee, any of the financial affairs of the Corporation or its affiliates, and, if deemed appropriate, make recommendations to the Board, external auditors or management.
- (e) The Audit Committee shall:
 - (i) evaluate the independence and performance of the external auditors;
 - (ii) recommend the nomination of the external auditors to the Board for appointment by the shareholders at the Corporation’s annual general meeting;
 - (iii) recommend the discharge of the external auditor when circumstances warrant;
 - (iv) monitor the rotation of the audit partner of the external auditors as required by applicable law or regulations;
 - (v) consider the recommendations of management in respect of the appointment of the external auditors;
 - pre-approve all non-audit services to be provided to the Corporation or its subsidiary entities by its external auditors, or the external auditors of affiliates of the Corporation subject to the over-riding principle that the external auditors are not permitted to be retained by the Corporation to perform specifically listed categories of
 - (vi) non-audit services as set forth by the Securities and Exchange Commission as well as internal audit outsourcing services, financial information systems work and expert services. Notwithstanding, the foregoing the pre-approval of non-audit services may be delegated to a Member of the Audit Committee, with any decisions of the Member with the delegated authority reporting to the Audit Committee at the next scheduled meeting;
 - approve the engagement letter for non-audit services to be provided by the external auditors or affiliates, together
 - (vii) with estimated fees, and considering the potential impact of such services on the independence of the external auditors;
 - (viii) when there is to be a change of external auditors, review all issues and provide documentation related to the change, including the information to be included in the Notice of Change of Auditors and documentation

- required pursuant to the then current legislation, rules, policies and instruments of applicable regulatory authorities and the planned steps for an orderly transition period; and
- (ix) review all reportable events, including disagreements, unresolved issues and consultations, as defined by applicable securities policies, on a routine basis, whether or not there is to be a change of external auditors.
 - (f) The Audit Committee shall enquire into and determine the appropriate resolution of any conflict of interest in respect of audit or financial matters, which are directed to the Audit Committee.
 - (g) The Audit Committee shall review the Corporation's accounting and reporting of revenues, costs, liabilities and contingencies.

- (h) The Audit Committee shall establish and maintain procedures for:
- (i) the receipt, retention and treatment of complaints received by the Corporation regarding accounting, internal controls, or auditing matters; and
 - (ii) the confidential, anonymous submission by employees of the Corporation or concerns regarding questionable accounting or auditing matters.
- (i) The Audit Committee shall review and approve the Corporation's hiring policies regarding partners and employees and former partners and employees of the present and former external auditors.
- The Audit Committee shall review with the Corporation's legal counsel, on no less than an annual basis, any legal matter that could have a material impact on the Corporation's financial statements, and any enquiries received from regulators, or government agencies.
- (j) The Audit Committee shall review with management and the Corporation's external auditors, on no less than an annual basis, any taxation matters that could have a material impact on the Corporation's financial statements.
- (k) The Audit Committee, through the Chair, shall receive notice from management of any instance of non-trivial fraud or other failure or weakness of the control system promptly upon management becoming aware of such.
- (l) The Audit Committee shall review and approve the signing authority for the Corporation at least annually or when a change is required.
- (m) The Audit Committee shall assess, on an annual basis, the adequacy of this Mandate and the performance of the Audit Committee.
- (n)

5. Reporting

The Committee shall, at the earliest opportunity after each meeting, report to the Board the results of its activities and any reviews undertaken and make recommendations to the Board as deemed appropriate. The Audit Committee may restrict such reports to independent directors in the event of a conflict of interest or potential conflict of interest or if otherwise necessary for the Audit Committee to properly discharge its responsibilities, but only for as long as is reasonably necessary.

6. Date of Mandate

This Mandate was last reviewed and approved by the Board on March 7, 2019.

D. Employees

The following table sets out the number of our employees at the end of each of the last three fiscal years by activity and geographic location.

Activity	2018	2017	2016
Research and development	10	12	12
Operating	12	11	9
Total	22	23	21

Geographic location	2018	2017	2016
Canada	13	14	14
United States of America	5	5	3
Other	4	4	4
Total	22	23	21

E. Share Ownership

The following table sets out the share ownership and options held of our directors and officers as of March 12, 2019. Common shares, stock options and exercises prices for all periods have been adjusted retroactively for the Share Consolidation.

	Common Shares	% of Ownership ⁽¹⁾	Options ⁽²⁾	Exercise Price	Expiry Date	% of Outstanding ⁽³⁾
Officers						
Dr. Matthew C. Coffey	36,623	**	3,157	29.07	December 8, 2019	
			12,105	63.84	December 14, 2020	
			1,894	40.95	July 27, 2021	
			13,157	36.96	December 14, 2021	
			13,157	40.00	December 17, 2022	
			25,263	16.53	December 11, 2023	
			77,263	3.99	December 1, 2025	
			42,105	2.66	January 16, 2027	
			133,389	7.41	March 8, 2022	
			150,000	3.44	November 19, 2023	
			471,490			2.29 %
Kirk J. Look	9,423	**	1,052	29.07	December 8, 2019	
			2,631	63.84	December 14, 2020	
			3,684	36.96	December 14, 2021	
			21,052	19.00	November 13, 2022	
			4,210	40.00	December 17, 2022	
			16,842	16.53	December 11, 2023	
			48,842	3.99	December 1, 2025	
			31,578	2.66	January 16, 2027	
			59,705	7.41	March 8, 2022	
			53,000	3.44	November 19, 2023	
			242,596			1.14%
Dr. Rita Laeufle	—	**	10,000	7.81	July 9, 2022	
			25,000	3.23	November 29, 2023	
			15,000	2.73	December 14, 2023	
			50,000			**
Andrew de Guttadauro	4,000	**	13,157	4.94	July 3, 2027	
			14,736	7.41	March 8, 2022	
			30,000	2.73	December 14, 2023	
			57,893			**
Michael Moore	5,105	**	13,157	3.33	February 20, 2027	
			14,736	7.41	March 8, 2022	
			25,000	2.73	December 14, 2023	
			52,893			**

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	Common Shares	% of Ownership ⁽¹⁾	Options ⁽²⁾	Exercise Price	Expiry Date	% of Outstanding ⁽³⁾
Allison Hagerman	—	**	210	46.55	November 9, 2020	
			210	63.84	December 14, 2020	
			842	36.96	December 14, 2021	
			526	20.24	December 12, 2022	
			2,105	16.53	December 11, 2023	
			2,421	6.84	December 11, 2024	
			5,263	3.90	December 9, 2025	
			7,894	2.66	December 28, 2026	
			10,526	7.41	March 8, 2022	
			30,000	2.73	December 14, 2023	
			59,997			**
Directors						
Deborah Brown	—	**	5,263	5.42	November 7, 2027	
			5,263			**
Angela Holtham	8,420	**	5,263	13.87	June 18, 2024	
			5,263			**
Mark Lievonen	4,688	**	1,842	29.07	December 8, 2019	
			3,157	63.84	December 14, 2020	
			3,684	36.96	December 14, 2021	
			3,684	40.00	December 17, 2022	
			3,684	16.53	December 11, 2023	
			16,051			**
Wayne Pisano	8,735	**	5,263	27.46	May 9, 2023	
			3,157	16.53	December 11, 2023	
			8,420			**
William Rice	5,263	**	5,263	7.60	June 8, 2025	
			5,263			**
Bernd Seizinger	5,878	**	5,263	7.60	June 8, 2025	
			5,263			**
TOTAL:	88,135		867,502			

** Less than 1% ownership

Notes:

1) Based on 18,840,010 common shares issued and outstanding on March 12, 2019.

2) Options exercisable to acquire common shares.

3) Ownership percentage assumes aggregate beneficial ownership of common shares, common shares acquirable upon exercise of options and fully diluted shares outstanding of 22,140,230.

Restricted Share Units

The following table sets out the restricted share units held by our directors as of March 12, 2019. Restricted share awards have been adjusted retroactively for the Share Consolidation.

	RSUs Granted	RSUs Vested	RSUs Unvested
Deborah Brown	12,105	—	12,105
Angela Holtham	50,064	(5,263)	44,801
Mark Lievonen	36,271	(5,263)	31,008
Wayne Pisano	73,710	(6,630)	67,080
William Rice	36,271	(5,263)	31,008
Bernd Seizinger	72,211	(5,878)	66,333
	280,632	(28,297)	252,335

The following table sets out the restricted share units held by our officers as of March 12, 2019. Restricted share awards have been adjusted retroactively for the Share Consolidation.

	RSUs Granted	RSUs Vested	RSUs Unvested
Andrew de Guttadauro	6,315	—	6,315
	6,315	—	6,315

Performance Share Units

The following table sets out the performance share units held by our officers as of March 12, 2019. Performance share awards have been adjusted retroactively for the Share Consolidation.

	PSUs Granted	PSUs Vested	PSUs Unvested
Matthew Coffey	34,736	—	34,736
Kirk Look	22,105	—	22,105
Michael Moore	6,315	2,105	4,210
	63,156	2,105	61,051

Equity Compensation Plan Information

We currently have two share based compensation plans: the Stock Option Plan and the Share Award Plan.

Stock Option Plan

The following is a summary of the Corporation's Amended and Restated Stock Option Plan (the "Stock Option Plan") dated effective as of May 4, 2017.

The Corporation, with the approval of its Shareholders, has established the Stock Option Plan. The number of Common Shares reserved for issuance under the Stock Option Plan and all other security based compensation arrangements of the Corporation (including the Share Award Plan) in aggregate shall not exceed 10% of the total number of issued and outstanding Common Shares from time to time.

Under the Stock Option Plan, the Board of Directors or the Compensation Committee may from time to time designate directors, officers, employees of, or consultants to, the Corporation or any subsidiary of the Corporation (such persons being "Eligible Persons") to whom Options may be granted and the number of Options to be granted to each.

Options may be exercised at a price (the "Exercise Price") which shall be fixed by the Board at the time the Option is granted. No Option can be granted with an Exercise Price at a discount to the market, which shall be the closing price of the Common Shares on the stock exchange upon which the Common Shares are listed on the first day preceding the date of grant on which at least one board lot of Common Shares traded on such exchange.

If any Option shall be exercised or shall expire or terminate for any reason without having been exercised in full, any Common Shares to which such Option relates shall be available for the purposes of the granting of Options under the Stock Option Plan.

The number of Shares that may be acquired under an Option granted to a participant under the Stock Option Plan shall be determined by the Board as at the time the Option is granted, provided that the aggregate number of Shares reserved for issuance to any one participant under the Stock Option Plan or any other security based compensation arrangement of the Corporation, shall not exceed five percent (5%) of the total number of issued and outstanding Common Shares (calculated on a non-diluted basis).

Without obtaining the approval of Shareholders in accordance with the rules of the TSX or the requirements of any other stock exchange on which the Common Shares are then listed, no Options shall be granted pursuant to the Stock Option Plan, if such grant together with grants pursuant to all other share compensation arrangements of the Corporation, could result, at any time, in:

- (i) a number of Common Shares issuable pursuant to Options granted to insiders exceeding ten percent (10%) of the number of outstanding Common Shares at any time;
- (ii) the issuance within a one year period to insiders, of a number of Common Shares exceeding ten percent (10%) of the number of outstanding Common Shares; or
- (iii) the issuance to any one insider and such insider's associates, within a one year period, of a number of Common Shares exceeding five percent (5%) of the number of outstanding Common Shares.

The value of Option grants to each non-employee director shall not exceed \$150,000 annually for any individual non-employee director (other than initial Option grants to new directors).

Options are generally granted for a term expiring on the tenth anniversary of the date of grant and typically either vest immediately or as to one-third on each of the first, second and third anniversary following the date of grant, as determined by the Board at the time the Option is granted. Options are not transferable or assignable except to the person or persons to whom the participant's rights pass by the participant's will or applicable law following the death or permanent disability of a participant. The Stock Option Plan provides that if the expiration date of an Option occurs during a "blackout period" or within five (5) business days after a blackout period, such expiration date shall be deemed to be extended to the date which is the tenth (10th) business day after the last day of the applicable blackout period. Subject to any written agreement between the Corporation and a participant providing otherwise, if any participant shall cease to be an Eligible Person for any reason other than the termination for cause or the death or permanent disability of the participant, such participant's Option will terminate immediately as to the then unvested portion thereof and at 5:00 p.m. (Calgary time) on the earlier of the date of the expiration of the applicable option period and the ninetieth (90th) day after the date such participant ceases to be an Eligible Person as to the then vested portion of the Option. If a participant ceases to be an Eligible Person as a result of the termination of such participant for cause, effective as of the date notice is given to the participant of such termination, all outstanding Options shall be terminated and all rights to receive Common Shares thereunder shall be forfeited by such participant, and the participant shall not be entitled to receive any Common Shares or other compensation in lieu thereof.

Subject to any written agreement between the Corporation and a participant providing otherwise, if in the event of the death or permanent disability of a participant, any Option previously granted to such participant shall be exercisable until the end of the applicable option period or until the expiration of 12 months after the date of death or permanent disability of such participant, whichever is earlier, and then only: (i) by the person or persons to whom the participant's rights under the Option shall pass by the participant's will or applicable law; (ii) to the extent that he or she was entitled to exercise the Option as at the date of the participant's death or permanent disability.

Notwithstanding the foregoing, the Board may, at its sole discretion, extend the period during which any Options may be exercised, in the case of Options held by non-employee directors, by not more than one year, and in the case of Options held by other persons, by not more than three years, but in no case longer than the normal expiry of the Options.

In the event of a change of control of the Corporation (as such term is defined in the Stock Option Plan), all Options which have not otherwise vested in accordance with their terms shall immediately vest and be exercisable,

notwithstanding the other terms of the Options or the Stock Option Plan for a period of time ending on the earlier of the expiry time of the Option and the ninetieth (90th) day following the change of control.

Subject to any required approval of the TSX and any other stock exchange on which the Common Shares are then listed, the Stock Option Plan and any Options granted thereunder may be amended, modified or terminated by the Board without approval of any

participant or Shareholder (provided that no such amendment may be made that will materially prejudice the rights of any participant under any Option previously granted to the participant without consent by such participant). Such changes may include, without limitation:

- (i) amending, modifying or terminating the Stock Option Plan with respect to all Common Shares in respect of Options which have not yet been granted thereunder;
- (ii) making any amendment of a “housekeeping nature”;
- (iii) changing the provisions relating to the manner of exercise of Options;
 - accelerating vesting or extending the expiration date of any Option (provided that such Option is not held by an insider), provided that the period during which an Option is exercisable does not exceed 10 years from the date the Option is granted;
- (v) adding a cashless exercise feature, payable in cash or securities, whether or not providing for a full deduction of the number of underlying Common Shares from the Stock Option Plan reserve; and
 - making any addition to, deletion from or alteration of the provisions of the Stock Option Plan or any Option that are necessary to comply with applicable law, the rules of the TSX, or the requirements of any other exchange on which the Shares are then listed and to avoid unanticipated consequences deemed by the Board to be inconsistent with the purpose of the Stock Option Plan.
- (vi)

Notwithstanding the foregoing, Shareholder approval is required for any change to the Stock Option Plan or Options granted under it which:

- (i) increases the number of Common Shares reserved for issuance under the Stock Option Plan;
- (ii) extends eligibility to participate in the Stock Option Plan to persons other than Eligible Persons;
- (iii) permits Options to be transferred, other than for normal estate settlement purposes or to an RRSP or similar plan;
- (iv) permits awards other than Options to be made under the Stock Option Plan;
- (v) extends the term of an Option beyond the maximum expiry date set out in the Stock Option Plan (except where an expiry date would have fallen within a blackout period);
 - reduces the exercise price of an Option, except for the purpose of maintaining Option value in connection with a conversion, change, reclassification, redivision, redesignation, subdivision or consolidation of shares or a reorganization, amalgamation, consolidation, merger, takeover bid or similar transaction involving the Corporation (for this purpose, cancellation or termination of an Option prior to its expiry date for the purpose of reissuing Options to the same Option-holder with a lower exercise price will be considered an amendment to reduce the exercise price of an Option);
- (vi)
- (vii) changes the insider participation limitation at any time under the Stock Option Plan; or
- (viii) amends the amending provision of the Stock Option Plan.

Share Award Plan

The following is a summary of the Corporation’s Amended and Restated Incentive Share Award Plan (the “Share Award Plan”) dated effective as of May 4, 2017.

The Corporation, with the approval of its Shareholders, has established the Share Award Plan. Under the Share Award Plan, the Board may, at such times and in such amounts as the Board may deem advisable in its sole and absolute discretion, issue Performance Share Awards (“PSAs”) to eligible employees, including officers, and Restricted Share Awards (“RSAs” and, together with PSAs, “Share Awards”) to Eligible Persons. The number of Common Shares reserved for issuance under the Share Award Plan and all other security based compensation arrangements of the Corporation (including the Stock Option Plan) in aggregate shall not exceed 10% of the total number of issued and outstanding Common Shares from time to time.

Subject to earlier vesting in accordance with the terms of the Share Award Plan and unless otherwise determined by the Board, Share Awards granted under the Share Award Plan vest on the third anniversary date of the date of grant. Upon vesting, each RSA is deemed to be redeemed for no further consideration for one Common Share (subject to

adjustment for dividend equivalents) and each PSA is deemed to be redeemed for no further consideration for one Common Share (subject to adjustment for dividend equivalents) multiplied by the percentage (“Vesting Percentage”) of outstanding PSAs that will vest based upon the relative achievement of any performance-related measures or criteria as determined by the Board in its sole discretion, which may include the Corporation’s performance compared to identified operational or financial targets and the Corporation’s shareholder return. The aggregate number of Common Shares issuable at any time to insiders, under all security based compensation arrangements of the Corporation shall not exceed 10% of the issued and outstanding Common Shares (calculated on a non-diluted basis). The aggregate number of Common Shares issued pursuant to all security based compensation arrangements of the Corporation, within a one year period, shall not exceed 10% of the issued and outstanding Common Shares (calculated on a non-diluted basis). The Share Award Plan further provides that the aggregate number of Common Shares reserved for issuance to any one participant under

all security based compensation arrangements of the Corporation, shall not exceed 5% of the total number of issued and outstanding Common Shares (calculated on a non-diluted basis).

The maximum number of Common Shares that may be reserved for issuance to non-employee directors pursuant to RSAs under the Share Award Plan is 1% of the Common Shares outstanding at the time of the grant (on a non-diluted basis), less the aggregate number of Common Shares reserved for issuance to such non-employee director under any other security based compensation arrangement, and the total annual grant of RSAs to any one non-employee director cannot exceed a grant value of \$150,000 (less the amount awarded to such non-employee director).

The Share Award Plan provides that if the issue date of any Share Award occurs during a blackout period, then the issue date for such Share Award shall not occur until the date which is the tenth (10th) business day after the last day of the such blackout period.

Unless otherwise determined by the Board in its sole discretion, upon a Change of Control (as such term is defined in the Share Award Plan), all unvested Share Awards shall become automatically vested (in the case of PSAs, with a deemed Vesting Percentage of 100). Common Shares issuable in respect of Share Awards shall be, and shall be deemed to be, issued to participants effective immediately prior to the completion of the transaction which would result in the Change of Control unless issued prior thereto in accordance with the Share Award Plan.

Unless otherwise determined by the Board or unless otherwise expressly set forth in a Share Award agreement pertaining to a particular Share Award or any written employment or other agreement governing a participant's role as an Eligible Person if a participant ceases to be an Eligible Person as a result of the termination of such participant for cause or if a participant voluntarily ceases to be an Eligible Person for any reason other than as a result of the death, permanent disability or retirement of the participant, all outstanding Share Awards Agreements under which Share Awards have been granted to such participant shall be terminated. Upon the death, permanent disability or retirement of a participant (other than the early retirement of an eligible employees), all outstanding Share Awards shall immediately vest. If a participant ceases to be an Eligible Person other than in the circumstances provided above, all Share Awards awarded to such participant under any outstanding Share Awards shall fully vest effective as of the date of cessation of employment (the "Cessation Date"), unless otherwise determined by the Board, and the participant shall be entitled to receive the number of Common Shares equal to the number of Share Awards granted multiplied by a fraction (A) the numerator of which is the number of days from the date of grant thereof to the Cessation Date; and (B) the denominator of which is the total number of days during which such Share Award were scheduled to vest upon grant. In such circumstances, the Vesting Percentage in respect of PSAs shall be determined as of the Cessation Date. The Share Award Plan and any Share Awards granted thereunder may be amended, modified or terminated by the Board without approval of Shareholders, subject to any required approval of the TSX. Such changes may include, without limitation:

- (i) amending, modifying or terminating the Share Award Plan with respect to all Common Shares in respect of Share Awards which have not yet been granted thereunder;
- (ii) making any amendment of a "housekeeping nature"; and making any addition to, deletion from or alteration of the provisions of this Plan or any Share Award that are necessary to comply with applicable law, the rules of the TSX, or the requirements of any other stock exchange on which the Common Shares are then listed and to avoid unanticipated consequences deemed by the Board to be inconsistent with the purpose of this Plan.
- (iii)

Notwithstanding the foregoing, the Share Award Plan or a Share Award may not be amended without shareholder approval to:

- (iv) increase the number of Common Shares issuable pursuant to outstanding Share Awards at any time;
- (v) change the insider participation limit under the Share Award Plan;
- (vi) expand the categories of individuals who are "eligible employees" who are eligible to participate in the Share Award Plan;
- (vii) extend the term of any Share Award beyond the term of such awards provided for under the terms and conditions of the Share Award Plan;

permit the transfer or assignment of Share Awards, except to permit a transfer to a family member, an entity (viii) controlled by the holder of the Share Awards or a family member, a charity or for estate planning or estate settlement purposes; or
(ix) change the amendment provisions of the Share Award Plan.

In addition, no amendment to the Share Award Plan or any Share Awards granted pursuant thereto may be made without the consent of an Share Award Plan participant if it adversely alters or impairs the rights of such participant in respect of any Share Award previously granted to such participant under the Share Award Plan.

ITEM 7. MAJOR SHAREHOLDERS AND RELATED PARTY TRANSACTIONS

A. Major Shareholders

We are not directly or indirectly owned or controlled by another corporation(s) or by any foreign government. To the knowledge of our directors and senior officers, as at March 15, 2019, we are not aware of any shareholder who beneficially owns, directly or indirectly, or exercises control or direction over, our common shares carrying more than 5% of the voting rights.

Shares Held in the United States

The following table indicates, as of February 28, 2019, the total number of common shares issued and outstanding, the approximate total number of holders of record of common shares, the number of holders of record of common shares with US addresses, the portion of the outstanding common shares held by US holders of record, and the percentage of common shares held by US holders of record. This table does not indicate beneficial ownership of common shares.

Total Number of Holders of Record	Total Number of Common Shares Issued and Outstanding ⁽¹⁾	Number of US Holders of Record	Number of Common Shares Held by US Holders of Record ⁽¹⁾	Percentage of Common Shares Held by US Holders of Record
182	18,660,903	50	10,914,291	58.49 %

Notes:

1) Common shares have been adjusted retroactively for the Share Consolidation.

Change of Control

As of March 15, 2019, there were no arrangements known to the Company which may, at a subsequent date, result in a change of control of the Company.

Control by Others

To the best of the Company's knowledge, the Company is not directly or indirectly owned or controlled by another corporation, any foreign government, or any other natural or legal person, severally or jointly.

B. Related Party Transactions

We have entered into employment contracts with each of our officers (see Item 6).

In November 2017, with the signing of a regional licensing agreement with upfront license fees, the Company triggered a liability of US\$178,125 to an officer as detailed in the Assumption Agreement. As at December 31, 2017, US\$178,125 was included in accounts payable and accrued liabilities. As at December 31, 2018, the liability was fully paid (see Notes 10 and 12 in our audited consolidated financial statements included under Item 18).

Since the beginning of the fiscal year ended December 31, 2018 up to March 15, 2019, we did not enter into any other related party transactions and we do not have any loans outstanding with any officer, director or major shareholder.

C. Interests of Experts and Council

Not Applicable

ITEM 8. FINANCIAL INFORMATION

A. Consolidated Statements and Other Financial Statements

Financial Statements

The consolidated financial statements filed as part of this annual report are filed under Item 18.

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Legal Proceedings

The directors and the management of the Company do not know of any material, active or pending, legal proceedings against them; nor is the Company involved as a plaintiff in any material proceeding or pending litigation.

The directors and the management of the Company know of no active or pending proceedings against anyone that might materially adversely affect an interest of the Company.

Dividend Policy

The Company has not paid any dividends on its common shares. The Company may pay dividends on its common shares in the future if it generates profits. Any decision to pay dividends on common shares in the future will be made by the board of directors on the basis of the earnings, financial requirements and other conditions existing at such time.

B. Significant Changes

There have been no significant changes to our annual financial statements.

ITEM 9. THE OFFER AND LISTING

A. Offering and Listing Details

Our Common Shares are traded on the TSX and on the Nasdaq Capital Market under the symbol ONC and ONCY, respectively. Between November 5, 2015 and June 1, 2018, our Common Shares traded on the OTCQX International ("OTCQX") under the symbols ONCYF and ONCYD, after our Common Shares were delisted from the Nasdaq on November 5, 2015. On June 1, 2018, our Common Shares were approved for listing and commenced trading on the Nasdaq Capital Market. The last reported sales price of our common shares on March 12, 2019 on the TSX was Cdn\$2.56 and on the Nasdaq was US\$1.91. The following table sets forth the high and low per share sales prices for our common shares on the Nasdaq and TSX for the periods indicated. In relation to the OTCQX, the following quotations reflect inter-dealer prices without retail mark-up, mark-down or commission and may not represent actual transactions. The following table sets forth the range of high and low bid prices during the periods indicated on the OTCQX. Share prices for all periods have been retroactively adjusted for the Share Consolidation.

Common Shares

	OTCQX		NASDAQ		TSX	
	High	Low	High	Low	High	Low
2014	N/A	N/A	18.91	3.80	20.90	4.28
2015	3.52	2.28	11.02	2.76	13.68	3.33
2016	5.42	1.43	N/A	N/A	7.13	2.00
2017	7.79	1.90	N/A	N/A	10.45	2.47
2018	8.55	4.28	7.40	1.64	10.67	2.26

2017

Quarter 1	4.56	1.90	N/A	N/A	6.08	2.47
Quarter 2	7.79	3.14	N/A	N/A	10.45	4.18
Quarter 3	5.32	3.61	N/A	N/A	6.56	4.56
Quarter 4	5.70	4.09	N/A	N/A	7.32	5.13

2018

Quarter 1	8.55	4.28	N/A	N/A	10.67	5.52
Quarter 2	8.20	4.45	7.40	4.89	10.65	5.81
Quarter 3	N/A	N/A	6.04	3.77	8.00	4.94
Quarter 4	N/A	N/A	4.33	1.64	5.47	2.26
September	N/A	N/A	5.12	3.77	6.52	4.94
October	N/A	N/A	4.33	2.60	5.47	3.41
November	N/A	N/A	3.20	2.13	4.12	2.82
December	N/A	N/A	2.61	1.64	3.44	2.26

2019

January	N/A	N/A	2.50	1.76	3.25	2.43
February	N/A	N/A	2.37	1.95	3.13	2.55
March (1 – 12)	N/A	N/A	2.14	1.80	2.87	2.40

Market Price Volatility of Common Shares

Market prices for the securities of biotechnology companies, including our securities, have historically been highly volatile, and the market has from time to time experienced significant price and volume fluctuations that are unrelated to the operating performance of particular companies. Factors, such as fluctuations in our operating results, the aftermath of our public announcements, and general market conditions, can have an adverse effect on the market price of our common shares and other securities.

B. Plan of Distribution

Not Applicable

C. Markets

Our Common Shares, no par value, are traded/quoted on the Nasdaq and the TSX under the symbol "ONCY" and "ONC", respectively.

D. Selling Shareholders

Not Applicable

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E. Dilution

Not Applicable

F. Expenses of the Issue

Not Applicable

ITEM 10. ADDITIONAL INFORMATION

A. Share Capital

Not Applicable

B. Memorandum and Articles of Association

Articles of Continuance

We are governed by our amended articles of incorporation (the "Articles") under the Business Corporations Act of Alberta (the "Act") and by our by-laws (the "By-laws"). Our Alberta corporate access number is 207797382. Our Articles provide that there are no restrictions on the business we may carry on or on the powers we may exercise. Companies incorporated under the Act are not required to include specific objects or purposes in their articles or by-laws.

Directors

Subject to certain exceptions, including in respect of voting on any resolution to approve a contract that relates primarily to the director's remuneration, directors may not vote on resolutions to approve a material contract or material transaction if the director is a party to such contract or transaction. The directors are entitled to remuneration as shall from time to time be determined by the Board of Directors with no requirement for a quorum of independent directors. The directors have the ability under the Act to exercise our borrowing power, without authorization of the shareholders. The Act permits shareholders to restrict this authority through a company's articles or by-laws (or through a unanimous shareholder agreement), but no such restrictions are in place for us. Our Articles and By-laws do not require directors to hold shares for qualification.

Rights, Preferences and Dividends Attaching to Shares

The holders of common shares have the right to receive dividends if and when declared. Each holder of common shares, as of the record date prior to a meeting, is entitled to attend and to cast one vote for each common share held as of such record date at such annual and/or special meeting, including with respect to the election or re-election of directors. Subject to the provisions of our By-laws, all directors may, if still qualified to serve as directors, stand for re-election. The numbers of our Board of Directors are not replaced at staggered intervals but are elected annually.

On a distribution of assets on a winding-up, dissolution or other return of capital (subject to certain exceptions) the holders of common shares shall have a right to receive their pro rata share of such distribution. There are no sinking fund or redemption provisions in respect of the common shares. Our shareholders have no liability to further capital calls as all shares issued and outstanding are fully paid and non-assessable.

No other classes of shares are currently permitted to be issued.

Action Necessary to Change the Rights of Shareholders

The rights attaching to the different classes of shares may be varied by special resolution passed at a meeting of that class's shareholders.

Annual and Special Meetings of Shareholders

Under the Act and our By-laws, we are required to mail a Notice of Meeting and Management Information Circular to registered shareholders not less than 21 days and not more than 50 days prior to the date of the meeting. Such materials must be filed concurrently with the applicable securities regulatory authorities in Canada and the US. Subject to certain provisions of the By-laws, a quorum of two or more shareholders in person or represented by proxy holding or representing by proxy not less than five

(5%) percent of the total number of issued and outstanding shares enjoying voting rights at such meeting is required to properly constitute a meeting of shareholders. Shareholders and their duly appointed proxies and corporate representatives are entitled to be admitted to our annual and/or special meetings.

Limitations on the Rights to Own Shares

The Articles do not contain any limitations on the rights to own shares. Except as described below, there are currently no limitations imposed by Canadian federal or provincial laws on the rights of non-resident or foreign owners of Canadian securities to hold or vote the securities held. There are also no such limitations imposed by the Articles and By-laws with respect to our common shares.

Disclosure of Share Ownership

In general, under applicable securities regulation in Canada, a person or company who beneficially owns, directly or indirectly, voting securities of an issuer or who exercises control or direction over voting securities of an issuer or a combination of both, carrying more than 10% of the voting rights attached to all the issuer's outstanding voting securities is an insider and must, within 10 days of becoming an insider, file a report in the required form effective the date on which the person became an insider. The report must disclose any direct or indirect beneficial ownership of, or control or direction over, securities of the reporting issuer. Additionally, securities regulation in Canada provides for the filing of a report by an insider of a reporting issuer whose holdings change, which report must be filed within 10 days from the day on which the change takes place.

The rules in the US governing the ownership threshold above which shareholder ownership must be disclosed are more stringent than those discussed above. Section 13 of the Exchange Act imposes reporting requirements on persons who acquire beneficial ownership (as such term is defined in Rule 13d-3 under the Exchange Act) of more than 5% of a class of an equity security registered under Section 12 of the Exchange Act. In general, such persons must file, within 10 days after such acquisition, a report of beneficial ownership with the SEC containing the information prescribed by the regulations under Section 13 of the Exchange Act. This information is also required to be sent to the issuer of the securities and to each exchange where the securities are traded.

Other Provisions of Articles and By-laws

There are no provisions in the Articles or By-laws:

- delaying or prohibiting a change in control of our company that operate only with respect to a merger, acquisition or corporate restructuring;
- discriminating against any existing or prospective holder of shares as a result of such shareholder owning a substantial number of shares;
- requiring disclosure of share ownership; or
- governing changes in capital, where such provisions are more stringent than those required by law.

C. Material Contracts

We have employment contracts with each of our officers as summarized in Item 6B. Other than these employment contracts and the Licensing Agreement described below, we have not entered into any other contract other than in the ordinary course of business over the last two years.

On November 16, 2017, the Company announced that it had, through its subsidiary, Oncolytics Biotech (Barbados) Inc., entered into the Licensing Agreement with Adlai, a biopharmaceutical company focused on discovering and developing new treatments for cancer and metabolic diseases.

Under the terms of the Licensing Agreement, Adlai will have exclusive development and commercialization rights to pelareorep in China, Hong Kong, Macau, Singapore, South Korea and Taiwan (the “Territories”). Pursuant to the Licensing Agreement, Oncolytics is entitled to receive an upfront payment of approximately US\$5.3 million; payment of US\$7.9 million upon certain regulatory milestones being achieved; and payment of up to US\$65.4 million upon certain clinical, regulatory and commercialization milestones being achieved. Oncolytics is also eligible to receive royalty payments in excess of 10% associated with the commercialization of pelareorep for all indications, subject to regulatory approval.

Under the terms of the Licensing Agreement, Adlai will be responsible for all clinical, regulatory and commercialization activities respecting pelareorep in the Territories. Oncolytics will maintain exclusive rights to pelareorep outside of the Territories and will be responsible for all development activities respecting pelareorep outside of the Territories.

In conjunction with the entering into of the Licensing Agreement, the Company and Adlai also entered into a warrant agreement pursuant to which the Company issued to Adlai:

(a) a common share purchase warrant (the "First Warrant") entitling Adlai to purchase, for a period of 12 months from the date of the Warrant Agreement, up to US\$2 million of common shares ("Common Shares") of the Company, at a price equal to 120% of the five-day weighted average price of the Common Shares on the Toronto Stock Exchange (the "Principal Market", unless the Common Shares begin trading on the Nasdaq Capital Market, in which case the Principal Market shall mean the Nasdaq Capital Market as of the date such trading commences) immediately preceding the exercise date; and

(b) a Common Share purchase warrant (the "Second Warrant") entitling Adlai to purchase, for a period of 36 months from the date of the Warrant Agreement, up to US\$6 million of Common Shares, at a price equal to 120% of the five-day weighted average price of the Common Shares on the Principal immediately preceding the exercise date.

Under the terms of the Warrant Agreement, the Company has the right to require the exercise by Adlai, within five business days of receipt of notice thereof, of:

(a) the First Warrant, upon the later of: (i) six months after the effective date of the Licensing Agreement; and (ii) the date of the enrollment of the first patient in the Global mBC Study (as such term is defined in the Licensing Agreement); and

(b) the Second Warrant, upon the date of the enrollment of the fiftieth (50th) patient in the Global mBC Study.

D. Exchange Controls

Canada has no system of exchange controls. There are no Canadian restrictions on the repatriation of capital or earnings of a Canadian public company to non-resident investors. There are no laws in Canada or exchange restrictions affecting the remittance of dividends, profits, interest, royalties and other payments to non-resident holders of our securities, except as discussed below in Section E, Taxation.

Restrictions on Share Ownership by Non-Canadians

There are no limitations under the laws of Canada or in our organizational documents on the right of foreigners to hold or vote securities of our company, except that the Investment Canada Act (the "Investment Canada Act") may require review and approval by the Minister of Industry (Canada) of certain acquisitions of "control" of our Company by a "non-Canadian."

Investment Canada Act

Under the Investment Canada Act, transactions exceeding certain financial thresholds, and which involve the acquisition of control of a Canadian business by a non-Canadian, are subject to review and cannot be implemented unless the Minister of Industry and/or, in the case of a Canadian business engaged in cultural activities, the Minister of Canadian Heritage, are satisfied that the transaction is likely to be of "net benefit to Canada". If a transaction is subject to review (a "Reviewable Transaction"), an application for review must be filed with the Investment Review Division of Industry Canada and/or the Department of Canadian Heritage prior to the implementation of the Reviewable Transaction. The responsible Minister is then required to determine whether the Reviewable Transaction is likely to be of net benefit to Canada taking into account, among other things, certain factors specified in the Investment Canada Act and any written undertakings that may have been given by the applicant. The Investment Canada Act

contemplates an initial review period of up to 45 days after filing; however, if the responsible Minister has not completed the review by that date, the Minister may unilaterally extend the review period by up to 30 days (or such longer period as may be agreed to by the applicant and the Minister) to permit completion of the review. Direct acquisitions of control of most Canadian businesses by or from World Trade Organization ("WTO") investors are reviewable under the Investment Canada Act only if, in the case of an acquisition of voting securities, the value of the worldwide assets of the Canadian business or, in the case of an acquisition of substantially all the assets of a Canadian business, the value of those assets exceed C\$295 million for the year 2008 (this figure is adjusted annually to reflect inflation). Indirect acquisitions (e.g., an acquisition of a US corporation with a Canadian subsidiary) of control of such businesses by or from WTO investors are not subject to review, regardless of the value of the Canadian businesses' assets. Significantly lower review thresholds apply where neither the investor nor the Canadian business is WTO investor controlled or where the Canadian business is engaged in uranium mining, certain cultural businesses, financial services or transportation services.

Even if the transaction is not reviewable because it does not meet or exceed the applicable financial threshold, the non-Canadian investor must still give notice to Industry Canada and, in the case of a Canadian business engaged in cultural activities, Canadian Heritage, of its acquisition of control of a Canadian business within 30 days of its implementation.

Competition Act

The Competition Act (Canada) (the "Competition Act") requires that a pre-merger notification filing be submitted to the Commissioner of Competition (the "Commissioner") in respect of proposed transactions that exceed certain financial and other thresholds. If a proposed transaction is subject to pre-merger notification, a pre-merger notification filing must be submitted to the Commissioner and a waiting period must expire or be waived by the Commissioner before the transaction may be completed. The parties to a proposed transaction may choose to submit either a short-form filing (in respect of which there is a 14-day statutory waiting period) or a long-form filing (in respect of which there is a 42-day statutory waiting period). However, where the parties choose to submit a short-form filing, the Commissioner may, within 14 days, require that the parties submit a long-form filing, in which case the proposed transaction generally may not be completed until 42 days after the long-form filing is submitted by the parties.

The Commissioner may, upon request, issue an advance ruling certificate ("ARC") in respect of a proposed transaction where she is satisfied that she would not have sufficient grounds on which to apply to the Competition Tribunal for an order under the merger provisions of the Competition Act. If the Commissioner issues an ARC in respect of a proposed transaction, the transaction is exempt from the pre-merger notification provisions. In addition, if the transaction to which the ARC relates is substantially completed within one year after the ARC is issued, the Commissioner cannot seek an order of the Competition Tribunal under the merger provisions of the Competition Act in respect of the transaction solely on the basis of information that is the same or substantially the same as the information on the basis of which the ARC was issued.

If the Commissioner is unwilling to issue an ARC, she may nevertheless issue a "no action" letter waiving notification and confirming that she is of the view that grounds do not then exist to initiate proceedings before the Competition Tribunal under the merger provisions of the Competition Act with respect to the proposed transaction, while preserving, during the three years following completion of the proposed transaction, her authority to initiate proceedings should circumstances change.

Regardless of whether pre-merger notification is required, the Commissioner may apply to the Competition Tribunal (a special purpose tribunal) for an order under the merger provisions of the Competition Act. If the Competition Tribunal finds that the transaction is or is likely to prevent or lessen competition substantially, it may order that the parties not proceed with the transaction or part of it or, in the event that the transaction has already been completed, order its dissolution or the disposition of some of the assets or shares involved. In addition, the Competition Tribunal may, with the consent of the person against whom the order is directed and the Commissioner, order that person to take any other action as is deemed necessary to remedy any substantial lessening or prevention of competition that the Competition Tribunal determines would or would likely result from the transaction.

E. Taxation

CERTAIN UNITED STATES FEDERAL INCOME TAX CONSIDERATIONS

The following is a general summary of certain material U.S. federal income tax considerations applicable to a U.S. Holder (as defined below) arising from and relating to the acquisition, ownership and disposition of Common Shares.

This summary is for general information purposes only and does not purport to be a complete analysis or listing of all potential U.S. federal income tax considerations that may apply to a U.S. Holder arising from and relating to the acquisition, ownership, and disposition of Common Shares. In addition, this summary does not take into account the individual facts and circumstances of any particular U.S. Holder that may affect the U.S. federal income tax consequences to such U.S. Holder, including, without limitation, specific tax consequences to a U.S. Holder under an applicable income tax treaty. Accordingly, this summary is not intended to be, and should not be construed as, legal or U.S. federal income tax advice with respect to any U.S. Holder. This summary does not address the U.S. federal alternative minimum, U.S. federal estate and gift, U.S. state and local, and non-U.S. tax consequences to U.S. Holders of the acquisition, ownership, and disposition of Common Shares. In addition, except as specifically set forth below, this summary does not discuss applicable tax reporting requirements. Each prospective U.S. Holder should consult its own tax advisors regarding the U.S. federal, U.S. federal alternative minimum, U.S. federal estate and gift, U.S. state and local, and non-U.S. tax consequences relating to the acquisition, ownership and disposition of Common Shares. No legal opinion from U.S. legal counsel or ruling from the Internal Revenue Service (the “IRS”) has been requested, or will be obtained, regarding the U.S. federal income tax consequences of the acquisition, ownership, and disposition of Common Shares.

This summary is not binding on the IRS, and the IRS is not precluded from taking a position that is different from, and contrary to, the positions taken in this summary. In addition, because the authorities on which this summary is based are subject to various interpretations, the IRS and the U.S. courts could disagree with one or more of the conclusions described in this summary.

Scope of this Summary

Authorities

This summary is based on the Internal Revenue Code of 1986, as amended (the “Code”), Treasury Regulations (whether final, temporary, or proposed), published rulings of the IRS, published administrative positions of the IRS, the Convention Between Canada and the United States of America with Respect to Taxes on Income and on Capital, signed September 26, 1980, as amended (the “Canada-U.S. Tax Convention”), and U.S. court decisions that are applicable, and, in each case, as in effect and available, as of the date of this document. Any of the authorities on which this summary is based could be changed in a material and adverse manner at any time, and any such change could be applied retroactively. This summary does not discuss the potential effects, whether adverse or beneficial, of any proposed legislation.

U.S. Holders

For purposes of this summary, the term “U.S. Holder” means a beneficial owner of Common Shares that is for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) organized under the laws of the United States, any state thereof or the District of Columbia;
- an estate whose income is subject to U.S. federal income taxation regardless of its source; or
- a trust that (1) is subject to the primary supervision of a court within the U.S. and the control of one or more U.S. persons for all substantial decisions or (2) has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

U.S. Holders Subject to Special U.S. Federal Income Tax Rules Not Addressed

This summary does not address the U.S. federal income tax considerations applicable to U.S. Holders that are subject to special provisions under the Code, including, but not limited to, U.S. Holders that: (a) are tax-exempt organizations, qualified retirement plans, individual retirement accounts, or other tax-deferred accounts; (b) are financial institutions, underwriters, insurance companies, real estate investment trusts, or regulated investment companies; (c) are broker-dealers, dealers, or traders in securities or currencies that elect to apply a mark-to-market accounting method; (d) have a “functional currency” other than the U.S. dollar; (e) own Common Shares as part of a straddle, hedging transaction, conversion transaction, constructive sale, or other arrangement involving more than one position; (f) acquire Common Shares in connection with the exercise of employee stock options or otherwise as compensation for services; (g) hold Common Shares other than as a capital asset within the meaning of Section 1221 of the Code (generally, property held for investment purposes); (h) own, have owned or will own (directly, indirectly, or by attribution) 10% or more of the total combined voting power or value of the outstanding shares of the Company or (i) a person required to accelerate the recognition of an item of income with respect to the Common Shares as a result of such income being recognized on an applicable financial statement. This summary also does not address the U.S. federal income tax considerations applicable to U.S. Holders who are: (a) U.S. expatriates or former long-term residents of the U.S.; (b) persons that have been, are, or will be a resident or deemed to be a resident in Canada for purposes of the Income Tax Act (Canada) (the “Tax Act”); (c) persons that use or hold, will use or hold, or that are or will be deemed to use or hold Common Shares in connection with carrying on a business in Canada; (d) persons whose Common Shares constitute “taxable Canadian property” under the Tax Act; or (e) persons that have a permanent establishment in Canada for the purposes of the Canada-U.S. Tax Convention. U.S. Holders that are subject to special provisions under the Code, including, but not limited to, U.S. Holders described immediately above, should consult their own tax advisors regarding the U.S. federal, U.S. federal alternative minimum, U.S. federal estate and gift, U.S. state and local, and non-U.S. tax consequences relating to the acquisition, ownership and disposition of Common

Shares.

If an entity or arrangement that is classified as a partnership (or other “pass-through” entity) for U.S. federal income tax purposes holds Common Shares, the U.S. federal income tax consequences to such entity or arrangement and the partners (or other owners or participants) of such entity or arrangement generally will depend on the activities of the entity or arrangement and the status of such partners (or owners or participants). This summary does not address the tax consequences to any such partner (or owner or participants). Partners (or other owners or participants) of entities or arrangements that are classified as partnerships or as “pass-through” entities for U.S. federal income tax purposes should consult their own tax advisors regarding the U.S. federal income tax consequences arising from and relating to the acquisition, ownership and disposition of Common Shares.

Passive Foreign Investment Company Rules

PFIC Status of the Company

If the Company were to constitute a “passive foreign investment company” under the meaning of Section 1297 of the Code (a “PFIC”, as defined below) for any year during a U.S. Holder’s holding period, then certain potentially adverse rules may affect the U.S. federal income tax consequences to a U.S. Holder as a result of the acquisition, ownership and disposition of Common Shares. The Company believes that it was classified as a PFIC for the tax year ended December 31, 2018, and based on current business plans and financial expectations, the Company anticipates that it may be a PFIC for its current tax year and subsequent tax years. The determination of whether any corporation was, or will be, a PFIC for a tax year depends, in part, on the application of complex U.S. federal income tax rules, which are subject to differing interpretations. In addition, whether any corporation will be a PFIC for any tax year depends on the assets and income of such corporation over the course of each such tax year and, as a result, cannot be predicted with certainty as of the date of this document. Accordingly, there can be no assurance that the IRS will not challenge any determination made by the Company (or any subsidiary of the Company) concerning its PFIC status. Each U.S. Holder should consult its own tax advisors regarding the PFIC status of the Company and each subsidiary of the Company.

In any year in which the Company is classified as a PFIC, a U.S. Holder will be required to file an annual report with the IRS containing such information as Treasury Regulations and/or other IRS guidance may require. In addition to penalties, a failure to satisfy such reporting requirements may result in an extension of the time period during which the IRS can assess a tax. U.S. Holders should consult their own tax advisors regarding the requirements of filing such information returns under these rules, including the requirement to file an IRS Form 8621.

The Company generally will be a PFIC if, for a tax year, (a) 75% or more of the gross income of the Company is passive income (the “PFIC income test”) or (b) 50% or more of the value of the Company’s assets either produce passive income or are held for the production of passive income, based on the quarterly average of the fair market value of such assets (the “PFIC asset test”). “Gross income” generally includes all sales revenues less the cost of goods sold, plus income from investments and from incidental or outside operations or sources, and “passive income” generally includes, for example, dividends, interest, certain rents and royalties, certain gains from the sale of stock and securities, and certain gains from commodities transactions.

For purposes of the PFIC income test and PFIC asset test described above, if the Company owns, directly or indirectly, 25% or more of the total value of the outstanding shares of another corporation, the Company will be treated as if it (a) held a proportionate share of the assets of such other corporation and (b) received directly a proportionate share of the income of such other corporation. In addition, for purposes of the PFIC income test and PFIC asset test described above, and assuming certain other requirements are met, “passive income” does not include certain interest, dividends, rents, or royalties that are received or accrued by the Company from certain “related persons” (as defined in Section 954(d)(3) of the Code) also organized in Canada, to the extent such items are properly allocable to the income of such related person that is not passive income.

Under certain attribution rules, if the Company is a PFIC, U.S. Holders will generally be deemed to own their proportionate share of the Company’s direct or indirect equity interest in any company that is also a PFIC (a “Subsidiary PFIC”), and will generally be subject to U.S. federal income tax on their proportionate share of (a) any “excess distributions,” as described below, on the stock of a Subsidiary PFIC and (b) a disposition or deemed disposition of the stock of a Subsidiary PFIC by the Company or another Subsidiary PFIC, both as if such U.S. Holders directly held the shares of such Subsidiary PFIC. In addition, U.S. Holders may be subject to U.S. federal income tax on any indirect gain realized on the stock of a Subsidiary PFIC on the sale or disposition of Common Shares. Accordingly, U.S. Holders should be aware that they could be subject to tax under the PFIC rules even if no distributions are received and no redemptions or other dispositions of Common Shares are made.

Default PFIC Rules Under Section 1291 of the Code

If the Company is a PFIC for any tax year during which a U.S. Holder owns Common Shares, the U.S. federal income tax consequences to such U.S. Holder of the acquisition, ownership, and disposition of Common Shares will depend on whether and when such U.S. Holder makes an election to treat the Company and each Subsidiary PFIC, if any, as a

“qualified electing fund” or “QEF” under Section 1295 of the Code (a “QEF Election”) or makes a mark-to-market election under Section 1296 of the Code (a “Mark-to-Market Election”). A U.S. Holder that does not make either a QEF Election or a Mark-to-Market Election will be referred to in this summary as a “Non-Electing U.S. Holder.”

A Non-Electing U.S. Holder will be subject to the rules of Section 1291 of the Code (described below) with respect to (a) any gain recognized on the sale or other taxable disposition of Common Shares and (b) any “excess distribution” received on the Common Shares. A distribution generally will be an “excess distribution” to the extent that such distribution (together with all

other distributions received in the current tax year) exceeds 125% of the average distributions received during the three preceding tax years (or during a U.S. Holder's holding period for the Common Shares, if shorter).

Under Section 1291 of the Code, any gain recognized on the sale or other taxable disposition of Common Shares (including an indirect disposition of the stock of any Subsidiary PFIC), and any "excess distribution" received on Common Shares or with respect to the stock of a Subsidiary PFIC, must be ratably allocated to each day in a Non-Electing U.S. Holder's holding period for the respective Common Shares. The amount of any such gain or excess distribution allocated to the tax year of disposition or distribution of the excess distribution and to years before the entity became a PFIC, if any, would be taxed as ordinary income (and not eligible for certain preferred rates). The amounts allocated to any other tax year would be subject to U.S. federal income tax at the highest tax rate applicable to ordinary income in each such year, and an interest charge would be imposed on the tax liability for each such year, calculated as if such tax liability had been due in each such year. A Non-Electing U.S. Holder that is not a corporation must treat any such interest paid as "personal interest," which is not deductible.

If the Company is a PFIC for any tax year during which a Non-Electing U.S. Holder holds Common Shares, the Company will continue to be treated as a PFIC with respect to such Non-Electing U.S. Holder, regardless of whether the Company ceases to be a PFIC in one or more subsequent tax years. A Non-Electing U.S. Holder may terminate this deemed PFIC status by electing to recognize gain (which will be taxed under the rules of Section 1291 of the Code discussed above), but not loss, as if such Common Shares were sold on the last day of the last tax year for which the Company was a PFIC.

QEF Election

A U.S. Holder that makes a timely and effective QEF Election for the first tax year in which the holding period of its Common Shares begins generally will not be subject to the rules of Section 1291 of the Code discussed above with respect to its Common Shares. A U.S. Holder that makes a timely and effective QEF Election will be subject to U.S. federal income tax on such U.S. Holder's pro rata share of (a) the net capital gain of the Company, which will be taxed as long-term capital gain to such U.S. Holder, and (b) the ordinary earnings of the Company, which will be taxed as ordinary income to such U.S. Holder. Generally, "net capital gain" is the excess of (a) net long-term capital gain over (b) net short-term capital loss, and "ordinary earnings" are the excess of (a) "earnings and profits" over (b) net capital gain. A U.S. Holder that makes a QEF Election will be subject to U.S. federal income tax on such amounts for each tax year in which the Company is a PFIC, regardless of whether such amounts are actually distributed to such U.S. Holder by the Company. However, for any tax year in which the Company is a PFIC and has no net income or gain, U.S.

Holders that have made a QEF Election would not have any income inclusions as a result of the QEF Election. If a U.S. Holder that made a QEF Election has an income inclusion, such a U.S. Holder may, subject to certain limitations, elect to defer payment of current U.S. federal income tax on such amounts, subject to an interest charge. If such U.S. Holder is not a corporation, any such interest paid will be treated as "personal interest," which is not deductible.

A U.S. Holder that makes a timely and effective QEF Election with respect to the Company generally (a) may receive a tax-free distribution from the Company to the extent that such distribution represents "earnings and profits" of the Company that were previously included in income by the U.S. Holder because of such QEF Election and (b) will adjust such U.S. Holder's tax basis in the Common Shares to reflect the amount included in income or allowed as a tax-free distribution because of such QEF Election. In addition, a U.S. Holder that makes a QEF Election generally will recognize capital gain or loss on the sale or other taxable disposition of Common Shares.

The procedure for making a QEF Election, and the U.S. federal income tax consequences of making a QEF Election, will depend on whether such QEF Election is timely. A QEF Election will be treated as "timely" if such QEF Election is made for the first year in the U.S. Holder's holding period for the Common Shares in which the Company was a PFIC. A U.S. Holder may make a timely QEF Election by filing the appropriate QEF Election documents at the time such U.S. Holder files a U.S. federal income tax return for such year. If a U.S. Holder does not make a timely and effective QEF Election for the first year in the U.S. Holder's holding period for the Common Shares, the U.S. Holder may still be able to make a timely and effective QEF Election in a subsequent year if such U.S. Holder meets certain requirements and makes a "purging" election to recognize gain (which will be taxed under the rules of Section 1291 of the Code discussed above) as if such Common Shares were sold for their fair market value on the day the QEF

Election is effective. If a U.S. Holder makes a QEF Election but does not make a “purging” election to recognize gain as discussed in the preceding sentence, then such U.S. Holder shall be subject to the QEF Election rules and shall continue to be subject to tax under the rules of Section 1291 discussed above with respect to its Common Shares. If a U.S. Holder owns PFIC stock indirectly through another PFIC, separate QEF Elections must be made for the PFIC in which the U.S. Holder is a direct shareholder and the Subsidiary PFIC for the QEF rules to apply to both PFICs. A QEF Election will apply to the tax year for which such QEF Election is timely made and to all subsequent tax years, unless such QEF Election is invalidated or terminated or the IRS consents to revocation of such QEF Election. If a U.S. Holder makes a QEF Election and, in a subsequent tax year, the Company ceases to be a PFIC, the QEF Election will remain in effect (although it will

not be applicable) during those tax years in which the Company is not a PFIC. Accordingly, if the Company becomes a PFIC in another subsequent tax year, the QEF Election will be effective and the U.S. Holder will be subject to the QEF rules described above during any subsequent tax year in which the Company qualifies as a PFIC.

U.S. Holders should be aware that there can be no assurances that the Company will satisfy the record keeping requirements that apply to a QEF, or that the Company will supply U.S. Holders with information that such U.S. Holders are required to report under the QEF rules, in the event that the Company is a PFIC. Thus, U.S. Holders may not be able to make a QEF Election with respect to their Common Shares. Each U.S. Holder should consult its own tax advisors regarding the availability of, and procedure for making, a QEF Election.

A U.S. Holder makes a QEF Election by attaching a completed IRS Form 8621, including a PFIC Annual Information Statement, to a timely filed United States federal income tax return. However, if the Company does not provide the required information with regard to the Company or any of its Subsidiary PFICs, U.S. Holders will not be able to make a QEF Election for such entity and will continue to be subject to the rules of Section 1291 of the Code discussed above that apply to Non-Electing U.S. Holders with respect to the taxation of gains and excess distributions.

Mark-to-Market Election

A U.S. Holder may make a Mark-to-Market Election only if the Common Shares are marketable stock. The Common Shares generally will be “marketable stock” if the Common Shares are regularly traded on (a) a national securities exchange that is registered with the Securities and Exchange Commission, (b) the national market system established pursuant to section 11A of the Securities and Exchange Act of 1934, or (c) a foreign securities exchange that is regulated or supervised by a governmental authority of the country in which the market is located, provided that (i) such foreign exchange has trading volume, listing, financial disclosure, and surveillance requirements, and meets other requirements and the laws of the country in which such foreign exchange is located, together with the rules of such foreign exchange, ensure that such requirements are actually enforced and (ii) the rules of such foreign exchange effectively promote active trading of listed stocks. If such stock is traded on such a qualified exchange or other market, such stock generally will be “regularly traded” for any calendar year during which such stock is traded, other than in de minimis quantities, on at least 15 days during each calendar quarter. Provided that the Common Shares are “regularly traded” as described in the preceding sentence, the Common Shares are expected to be marketable stock. However, each U.S. Holder should consult its own tax advisor in this regard.

A U.S. Holder that makes a Mark-to-Market Election with respect to its Common Shares generally will not be subject to the rules of Section 1291 of the Code discussed above with respect to such Common Shares. However, if a U.S. Holder does not make a Mark-to-Market Election beginning in the first tax year of such U.S. Holder’s holding period for the Common Shares for which the Company is a PFIC and such U.S. Holder has not made a timely QEF Election, the rules of Section 1291 of the Code discussed above will apply to certain dispositions of, and distributions on, the Common Shares.

A U.S. Holder that makes a Mark-to-Market Election will include in ordinary income, for each tax year in which the Company is a PFIC, an amount equal to the excess, if any, of (a) the fair market value of the Common Shares, as of the close of such tax year over (b) such U.S. Holder’s adjusted tax basis in such Common Shares. A U.S. Holder that makes a Mark-to-Market Election will be allowed a deduction in an amount equal to the excess, if any, of (a) such U.S. Holder’s adjusted tax basis in the Common Shares, over (b) the fair market value of such Common Shares (but only to the extent of the net amount of previously included income as a result of the Mark-to-Market Election for prior tax years).

A U.S. Holder that makes a Mark-to-Market Election generally also will adjust such U.S. Holder’s tax basis in the Common Shares to reflect the amount included in gross income or allowed as a deduction because of such Mark-to-Market Election. In addition, upon a sale or other taxable disposition of Common Shares, a U.S. Holder that makes a Mark-to-Market Election will recognize ordinary income or ordinary loss (not to exceed the excess, if any, of (a) the amount included in ordinary income because of such Mark-to-Market Election for prior tax years over (b) the amount allowed as a deduction because of such Mark-to-Market Election for prior tax years). Losses that exceed this limitation are subject to the rules generally applicable to losses provided in the Code and Treasury Regulations.

A U.S. Holder makes a Mark-to-Market Election by attaching a completed IRS Form 8621 to a timely filed United States federal income tax return. A Mark-to-Market Election applies to the tax year in which such Mark-to-Market Election is made and to each subsequent tax year, unless the Common Shares cease to be “marketable stock” or the IRS consents to revocation of such election. Each U.S. Holder should consult its own tax advisors regarding the availability of, and procedure for making, a Mark-to-Market Election.

Although a U.S. Holder may be eligible to make a Mark-to-Market Election with respect to the Common Shares, no such election may be made with respect to the stock of any Subsidiary PFIC that a U.S. Holder is treated as owning, because such stock is not marketable. Hence, the Mark-to-Market Election will not be effective to avoid the application of the default rules of Section 1291 of the Code described above with respect to deemed dispositions of Subsidiary PFIC stock or excess distributions from a Subsidiary PFIC to its shareholder.

Other PFIC Rules

Under Section 1291(f) of the Code, the IRS has issued proposed Treasury Regulations that, subject to certain exceptions, would cause a U.S. Holder that had not made a timely QEF Election to recognize gain (but not loss) upon certain transfers of Common Shares that would otherwise be tax-deferred (e.g., gifts and exchanges pursuant to corporate reorganizations). However, the specific U.S. federal income tax consequences to a U.S. Holder may vary based on the manner in which Common Shares are transferred.

Certain additional adverse rules may apply with respect to a U.S. Holder if the Company is a PFIC, regardless of whether such U.S. Holder makes a QEF Election. For example, under Section 1298(b)(6) of the Code, a U.S. Holder that uses Common Shares as security for a loan will, except as may be provided in Treasury Regulations, be treated as having made a taxable disposition of such Common Shares.

Special rules also apply to the amount of foreign tax credit that a U.S. Holder may claim on a distribution from a PFIC. Subject to such special rules, foreign taxes paid with respect to any distribution in respect of stock in a PFIC are generally eligible for the foreign tax credit. The rules relating to distributions by a PFIC and their eligibility for the foreign tax credit are complicated, and a U.S. Holder should consult with its own tax advisors regarding the availability of the foreign tax credit with respect to distributions by a PFIC.

The PFIC rules are complex, and each U.S. Holder should consult its own tax advisors regarding the PFIC rules and how the PFIC rules may affect the U.S. federal income tax consequences of the acquisition, ownership, and disposition of Common Shares.

General Rules Applicable to the Ownership and Disposition of Common Shares

The following discussion describes the general rules applicable to the ownership and disposition of the Common Shares but is subject in its entirety to the special rules described above under the heading “Passive Foreign Investment Company Rules.”

Distributions on Common Shares

A U.S. Holder that receives a distribution, including a constructive distribution, with respect to a Common Share will be required to include the amount of such distribution in gross income as a dividend (without reduction for any Canadian income tax withheld from such distribution) to the extent of the current and accumulated “earnings and profits” of the Company, as computed for U.S. federal income tax purposes. A dividend generally will be taxed to a U.S. Holder at ordinary income tax rates if the Company is a PFIC for the tax year of such distribution or the preceding tax year. To the extent that a distribution exceeds the current and accumulated “earnings and profits” of the Company, such distribution will be treated first as a tax-free return of capital to the extent of a U.S. Holder's tax basis in the Common Shares and thereafter as gain from the sale or exchange of such Common Shares. (See “Sale or Other Taxable Disposition of Common Shares” below). However, the Company may not maintain the calculations of its earnings and profits in accordance with U.S. federal income tax principles, and each U.S. Holder may have to assume that any distribution by the Company with respect to the Common Shares will constitute ordinary dividend income. Dividends received on Common Shares by corporate U.S. Holders generally will not be eligible for the “dividends received deduction.” Subject to applicable limitations and provided the Company is eligible for the benefits of the Canada-U.S. Tax Convention, dividends paid by the Company to non-corporate U.S. Holders, including individuals, generally will be eligible for the preferential tax rates applicable to long-term capital gains for dividends, provided certain holding period and other conditions are satisfied, including that the Company not be classified as a PFIC in the tax year of distribution or in the preceding tax year. The dividend rules are complex, and each U.S. Holder should consult its own tax advisors regarding the application of such rules.

Sale or Other Taxable Disposition of Common Shares

Upon the sale or other taxable disposition of Common Shares, a U.S. Holder generally will recognize capital gain or loss in an amount equal to the difference between the U.S. dollar value of cash received plus the fair market value of any property received and such U.S. Holder's tax basis in such Common Shares sold or otherwise disposed of. A U.S. Holder's tax basis in Common Shares generally will be such holder's U.S. dollar cost for such Common Shares. Gain or loss recognized on such sale or other

disposition generally will be long-term capital gain or loss if, at the time of the sale or other disposition, the Common Shares have been held for more than one year.

Preferential tax rates currently apply to long-term capital gain of a U.S. Holder that is an individual, estate, or trust.

There are currently no preferential tax rates for long-term capital gain of a U.S. Holder that is a corporation.

Deductions for capital losses are subject to significant limitations under the Code.

Additional Considerations

Additional Tax on Passive Income

Certain U.S. Holders that are individuals, estates or trusts (other than trusts that are exempt from tax) will be subject to a 3.8% tax on all or a portion of their “net investment income,” which includes dividends on the Common Shares and net gains from the disposition of the Common Shares. Further, excess distributions treated as dividends, gains treated as excess distributions under the PFIC rules discussed above, and mark-to-market inclusions and deductions are all included in the calculation of net investment income.

Treasury Regulations provide, subject to the election described in the following paragraph, that solely for purposes of this additional tax, that distributions of previously taxed income will be treated as dividends and included in net investment income subject to the additional 3.8% tax. Additionally, to determine the amount of any capital gain from the sale or other taxable disposition of Common Shares that will be subject to the additional tax on net investment income, a U.S. Holder who has made a QEF Election will be required to recalculate its basis in the Common Shares excluding QEF basis adjustments.

Alternatively, a U.S. Holder may make an election which will be effective with respect to all interests in a PFIC for which a QEF Election has been made and which is held in that year or acquired in future years. Under this election, a U.S. Holder pays the additional 3.8% tax on QEF income inclusions and on gains calculated after giving effect to related tax basis adjustments. U.S. Holders that are individuals, estates or trusts should consult their own tax advisors regarding the applicability of this tax to any of their income or gains in respect of the Common Shares.

Receipt of Foreign Currency

The amount of any distribution paid to a U.S. Holder in foreign currency, or on the sale, exchange or other taxable disposition of Common Shares, generally will be equal to the U.S. dollar value of such foreign currency based on the exchange rate applicable on the date of receipt (regardless of whether such foreign currency is converted into U.S. dollars at that time). A U.S. Holder will have a basis in the foreign currency equal to its U.S. dollar value on the date of receipt. Any U.S. Holder who converts or otherwise disposes of the foreign currency after the date of receipt may have a foreign currency exchange gain or loss that would be treated as ordinary income or loss, and generally will be U.S. source income or loss for foreign tax credit purposes. Different rules apply to U.S. Holders who use the accrual method. Each U.S. Holder should consult its own U.S. tax advisors regarding the U.S. federal income tax consequences of receiving, owning, and disposing of foreign currency.

Foreign Tax Credit

Subject to the PFIC rules discussed above, a U.S. Holder that pays (whether directly or through withholding) Canadian income tax with respect to dividends paid on the Common Shares generally will be entitled, at the election of such U.S. Holder, to receive either a deduction or a credit for such Canadian income tax. Generally, a credit will reduce a U.S. Holder's U.S. federal income tax liability on a dollar-for-dollar basis, whereas a deduction will reduce a U.S. Holder's income that is subject to U.S. federal income tax. This election is made on a year-by-year basis and applies to all foreign taxes paid (whether directly or through withholding) by a U.S. Holder during a year. Complex limitations apply to the foreign tax credit, including the general limitation that the credit cannot exceed the proportionate share of a U.S. Holder's U.S. federal income tax liability that such U.S. Holder's “foreign source” taxable income bears to such U.S. Holder's worldwide taxable income. In applying this limitation, a U.S. Holder's various items of income and deduction must be classified, under complex rules, as either “foreign source” or “U.S. source.”

Generally, dividends paid by a foreign corporation should be treated as foreign source for this purpose, and gains recognized on the sale of stock of a foreign corporation by a U.S. Holder should be treated as U.S. source for this purpose, except as otherwise provided in an applicable income tax treaty, and if an election is properly made under the Code. However, the amount of a distribution with respect to the Common Shares that is treated as a “dividend” may be lower for U.S. federal income tax purposes than it is for Canadian federal income tax purposes, resulting in a reduced foreign tax credit allowance to a U.S. Holder. In addition, this limitation is calculated separately with respect

to specific categories of income. The foreign tax credit rules are complex, and each U.S. Holder should consult its own U.S. tax advisors regarding the foreign tax credit rules.

Backup Withholding and Information Reporting

Under U.S. federal income tax law, certain categories of U.S. Holders must file information returns with respect to their investment in, or involvement in, a foreign corporation. For example, U.S. return disclosure obligations (and related penalties) are imposed on individuals who are U.S. Holders that hold certain specified foreign financial assets in excess of certain thresholds. The definition of specified foreign financial assets includes not only financial accounts maintained in foreign financial institutions, but also, unless held in accounts maintained by a financial institution, any stock or security issued by a non-U.S. person, any financial instrument or contract held for investment that has an issuer or counterparty other than a U.S. person and any interest in a foreign entity. U.S. Holders may be subject to these reporting requirements unless their Common Shares are held in an account at certain financial institutions. Penalties for failure to file certain of these information returns are substantial. U.S. Holders should consult with their own tax advisors regarding the requirements of filing information returns, including the requirement to file an IRS Form 8938.

Payments made within the U.S., or by a U.S. payor or U.S. middleman, of dividends on, and proceeds arising from the sale or other taxable disposition of, Common Shares will generally be subject to information reporting and backup withholding tax, at the rate of 24%, if a U.S. Holder (a) fails to furnish such U.S. Holder's correct U.S. taxpayer identification number (generally on Form W-9), (b) furnishes an incorrect U.S. taxpayer identification number, (c) is notified by the IRS that such U.S. Holder has previously failed to properly report items subject to backup withholding tax, or (d) fails to certify, under penalty of perjury, that such U.S. Holder has furnished its correct U.S. taxpayer identification number and that the IRS has not notified such U.S. Holder that it is subject to backup withholding tax. However, certain exempt persons generally are excluded from these information reporting and backup withholding rules. Backup withholding is not an additional tax. Any amounts withheld under the U.S. backup withholding tax rules will be allowed as a credit against a U.S. Holder's U.S. federal income tax liability, if any, or will be refunded, if such U.S. Holder furnishes required information to the IRS in a timely manner.

The discussion of reporting requirements set forth above is not intended to constitute a complete description of all reporting requirements that may apply to a U.S. Holder. A failure to satisfy certain reporting requirements may result in an extension of the time period during which the IRS can assess a tax and, under certain circumstances, such an extension may apply to assessments of amounts unrelated to any unsatisfied reporting requirement. Each U.S. Holder should consult its own tax advisors regarding the information reporting and backup withholding rules.

THE ABOVE SUMMARY IS NOT INTENDED TO CONSTITUTE A COMPLETE ANALYSIS OF ALL TAX CONSIDERATIONS APPLICABLE TO U.S. HOLDERS WITH RESPECT TO THE ACQUISITION, OWNERSHIP, AND DISPOSITION OF COMMON SHARES. U.S. HOLDERS SHOULD CONSULT THEIR OWN TAX ADVISORS AS TO THE TAX CONSIDERATIONS APPLICABLE TO THEM IN THEIR OWN PARTICULAR CIRCUMSTANCES.

F. Dividends and Paying Agents

Not Applicable

G. Statements by Experts

Not Applicable

H. Documents on Display

We are subject to the informational requirements of the Exchange Act and file reports and other information with the SEC. You may read and copy any of our reports and other information at, and obtain copies upon payment of prescribed fees from, the Public Reference Room maintained by the SEC at 100 F Street, N.E., Washington, D.C.

20549. In addition, the SEC maintains a Website that contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC at <https://www.sec.gov>. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330.

We are required to file reports and other information with the securities commissions in Canada. You are invited to read and copy any reports, statements or other information, other than confidential filings, that we file with the provincial securities commissions. These filings are also electronically available from the Canadian System for Electronic Document Analysis and Retrieval ("SEDAR") (<https://www.sedar.com>), the Canadian equivalent of the SEC's electronic document gathering and retrieval system.

We "incorporate by reference" information that we file with the SEC, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is an important part of this Form 20-F and more recent information automatically updates and supersedes more dated information contained or incorporated by reference in this Form 20-F.

As a foreign private issuer, we are exempt from the rules under the Exchange Act prescribing the furnishing and content of proxy statements to shareholders.

We will provide without charge to each person, including any beneficial owner, to whom a copy of this annual report has been delivered, on the written or oral request of such person, a copy of any or all documents referred to above which have been or may be incorporated by reference in this annual report (not including exhibits to such incorporated information that are not specifically incorporated by reference into such information). Requests for such copies should be directed to us at the following address: Oncolytics Biotech Inc., 210 – 1167 Kensington Crescent, NW, Calgary, Alberta, Canada, T2N 1X7, Attention: Kirk Look. Telephone (403) 670 - 7377. Facsimile (403) 283-0858 EMAIL: info@oncolyticsbiotech.com.

I. Subsidiary Information

Not applicable.

ITEM 11. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Foreign Currency Risk

We operate primarily in Canada, the US, the U.K. and Europe. Therefore, we are exposed to foreign currency risk associated with our expenses outside of Canada. We do not use financial derivative instruments to manage this market risk.

Interest Rate Risk

The primary objective of our policy for the investment of temporary cash surpluses is the protection of principal, and, accordingly, we generally invest in investment-grade debt securities with varying maturities. As it is our intent and policy to hold these investments until maturity, we do not have a material exposure to interest rate risk.

We do not currently have any long-term debt, nor do we currently utilize interest rate swap contracts to hedge against interest rate risk.

We do not use financial instruments for trading purposes and are not parties to any leverage derivatives. We do not currently engage in hedging transactions. See "Currency and Exchange Rates" and Item 4 – "Information on the Company".

ITEM 12. DESCRIPTION OF SECURITIES OTHER THAN EQUITY SECURITIES.

A. Debt Securities

Not Applicable

B. Warrants and Rights

Not Applicable

C. Other Securities

Not Applicable

D. American Depository Shares

The Company's Common Shares are not represented by American Depository Receipts.

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PART II

ITEM 13. DEFAULTS, DIVIDEND ARREARAGES AND DELINQUENCIES.

None

ITEM 14. MATERIAL MODIFICATIONS TO THE RIGHTS OF SECURITY HOLDERS AND USE OF PROCEEDS.

A. Modification of Instruments Defining Rights of Security Holders

None

B. Modification or Issuance of Other Class of Securities

None

C. Withdrawal or Substitution of Security

None

D. Change of Trustee or Paying Agent

None

E. Use of Proceeds

There has been no change to the information provided in our first annual report on Form 20-F.

ITEM 15. CONTROLS AND PROCEDURES

A. Evaluation of Disclosures and Procedures

It is the conclusion of our Chief Executive Officer and Chief Financial Officer that our Company's disclosure controls and procedures (as defined in Exchange Act rules 13a-15(e) and 15d-15(e)), based on their evaluation of these controls and procedures as of the end of the period covered by this annual report, are effective in ensuring that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms, and that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

B. Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. As defined in Exchange Act Rule 13a-15(f), internal control over financial reporting is a process designed by, or under the supervision of, our Chief Executive Officer and Chief Financial Officer and effected by the board of directors,

management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with International Reporting Standards as issued by the International Accounting Standards Board ("IFRS"), and includes those policies and procedures that (i) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with IFRS, and that receipts and expenditures of the Company are being made only in accordance with authorizations of our management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements.

Management, including the Company's Chief Executive Officer and Chief Financial Officer, assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2018. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission, 2013 Framework, (COSO) in

Internal Control-Integrated Framework. Based on this assessment, management believes that, as of December 31, 2018, the Company's internal control over financial reporting was effective based on those criteria.

C. Attestation Report of the Registered Public Accounting Firms

The Auditor Attestation Report is included in the Ernst & Young LLP Independent Auditor's Report, included in the Company's financial statements, beginning on page F-1 of this annual report on Form 20-F.

D. Changes in Internal Controls over Financial Reporting

There were no changes in our internal controls over financial reporting that occurred during the period that is covered by this annual report that have materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

ITEM 16 . [RESERVED]

ITEM 16A. AUDIT COMMITTEE FINANCIAL EXPERT

Our Board has determined that each of the Audit Committee members, Angela Holtham, Wayne Pisano, Mark Lievonon and Deborah Brown, is a financial expert and each is independent pursuant to the Rule 5605(d)(2) of the Nasdaq Capital Market and Rule 10A-3 of the Exchange Act.

ITEM 16B. CODE OF ETHICS

Our Board of Directors has adopted a Code of Ethics for our Chief Executive Officer, Chief Financial Officer and Accounting Officer that applies to our Chief Executive Officer, Chief Financial Officer and Controller. A copy of this Code of Ethics may be found on the Company's website at <https://www.oncolyticsbiotech.com>. Requests for such copies should be directed to us at the following address: Oncolytics Biotech Inc., 210 – 1167 Kensington Crescent, NW, Calgary, Alberta, Canada, T2N 1X7, Attention: Kirk Look Telephone (403) 670 - 7377. Facsimile (403) 283-0858 EMAIL: info@oncolyticsbiotech.com.

There were no amendments to our Code of Ethics during the fiscal year ended December 31, 2018. We did not grant any waivers to the provisions of our Code of Ethics during the fiscal year ended December 31, 2018.

ITEM 16C. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Audit Fees and Services

During the financial years ended December 31, 2018, 2017, and 2016, Ernst & Young LLP received the following fees:

Item	2018	2017	2016
	\$	\$	\$
Audit fees	190,342	104,555	163,910
Audit-related fees	183,865	144,327	152,145
Tax fees	19,647	19,037	40,843
All other fees	—	—	—

Audit Fees

Audit fees were for professional services rendered by Ernst & Young, LLP for the audit of our annual financial statements and services provided in connection with statutory and regulatory filings or engagements.

Audit-Related Fees

Audit-related fees were for assurance and related services reasonably related to the performance of the audit or review of the annual statements and are not reported under the heading Audit Fees above. These services consisted of review of interim financial statements, accounting consultations, assistance with prospectus filings and matters relating to the provision of a consent letter for various filings.

Tax Fees

Tax fees were for tax return preparations, scientific research and development return and other tax consultation fees.

All Other Fees

Other fees are for products and services other than those described under the headings Audit Fees, Audit-Related Fees and Tax Fees above.

The Audit Committee pre-approves all audit services to be provided to us by our independent auditors. The Audit Committee's policy regarding the pre-approval of non-audit services to be provided to us by our independent auditors is that all such services shall be pre-approved by the Audit Committee or by the Chair of the Audit Committee, who must report all such pre-approvals to the Audit Committee at their next meeting following the granting thereof. Non-audit services that are prohibited to be provided to us by our independent auditors may not be pre-approved. In addition, prior to the granting of any pre-approval, the Audit Committee or the Chair, as the case may be, must be satisfied that the performance of the services in question will not compromise the independence of the independent auditors.

ITEM 16D. EXEMPTIONS FROM THE LISTING STANDARDS FOR AUDIT COMMITTEES

None

ITEM 16E. PURCHASE OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASES

None

ITEM 16F. CHANGE IN REGISTRANT'S CERTIFYING ACCOUNTANTS

None

ITEM 16G. CORPORATE GOVERNANCE

NASDAQ CORPORATE GOVERNANCE

Our common shares are quoted for trading on the Nasdaq Capital Market. Section 5615(a)(3) of the Nasdaq Marketplace Rules permits the Nasdaq to grant exemptions to a foreign private issuer for the provisions of the Rule 5600 series, Rule 5250 (d), and Rules 5210(c) and 5255 related to qualitative listing requirements. We are organized under the laws of the Province of Alberta and our common shares are listed for trading on The Toronto Stock Exchange. We comply with the laws of the Province of Alberta and rules and regulations of The Toronto Stock Exchange, including rules related to corporate governance practices. A description of the significant ways in which our governance practices differ from those followed by domestic companies pursuant to the Nasdaq Marketplace Rules is as follows:

Shareholder Meeting Quorum Requirement: The Nasdaq minimum quorum requirement for a shareholder meeting under Section 5620(c) of the Nasdaq Marketplace Rules is one-third of the outstanding shares of common stock. In addition, a company listed on Nasdaq is required to state our quorum requirement in our bylaws. Our quorum requirement is set forth in our corporate bylaws. A quorum for our shareholder meeting is two persons present and being, or representing by proxy, members holding not less than 5% of the issued shares entitled to be voted at such

meeting.

The foregoing is consistent with the laws, customs and practices in Canada and the rules of The Toronto Stock Exchange.

ITEM 16H. MINE SAFETY DISCLOSURE

Not applicable.

PART III

ITEM 17. FINANCIAL STATEMENTS.

Not applicable.

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ITEM 18 FINANCIAL STATEMENTS

The financial statements appear on pages F-1 through F-26.

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ITEM 19. EXHIBITS.

The following exhibits are filed as part of this annual report:

EXHIBIT NUMBER	DESCRIPTION
	Constating Documents
1.1(a)	Articles of Incorporation
1.2(a)	By-laws
	Material Contracts
4.1(b)*	<u>Services Agreement, dated October 16, 2002, between the Company and its Senior Vice President, Clinical and Regulatory Affairs, George Gill</u>
4.2(c)*	<u>Amending Agreement No. 1, dated January 6, 2005, to the Services Agreement between the Company and its Senior Vice President, Clinical and Regulatory Affairs, George Gill, dated October 16, 2001</u>
4.3(c)*	<u>Employment Agreement, dated January 12, 2007, between the Company and its Vice President, Intellectual Property, Mary Ann Dillahunty</u>
4.4(c)*	<u>Executive Employment Agreement, dated May 29, 2007, between the Company and its Chief Scientific Officer, Matthew Coffey</u>
4.5(c)*	<u>Executive Employment Agreement, dated May 29, 2007, between the Company and its Chief Medical Officer, Dr. Karl Mettinger</u>
4.6(c)*	<u>Executive Employment Agreement, dated May 30, 2007, between the Company and its Chief Financial Officer, Douglas Ball</u>
4.7(c)*	<u>Executive Employment Agreement, dated June 6, 2007, between the Company and its Chief Executive Officer, Bradley Thompson</u>
4.8(c)*	<u>Amending Agreement No. 1, dated December 3, 2007, to the Employment Agreement between the Company and its Vice President, Intellectual Property, Mary Ann Dillahunty, dated January 12, 2007</u>
4.9(c)*	<u>Amendment No. 1, dated March 7, 2008, to the Executive Employment Agreement between the Company and its Chief Financial Officer, Douglas Ball, dated May 30, 2007</u>
4.10(c)*	<u>Amendment No.1, dated March 7, 2008, between the Company and its Chief Scientific Officer, Matthew Coffey, dated May 29, 2007</u>
4.11(c)*	<u>Amendment No. 1, dated March 7, 2008, to the Executive Employment Agreement between the Company and its Chief Executive Officer, Bradley Thompson, dated June 6, 2007</u>
4.12(c)*	<u>Amendment No. 1, dated March 20, 2008, to the Employment Agreement between the Company and its Vice President, Intellectual Property, Mary Ann Dillahunty, dated January 12, 2007</u>
4.13(c)*	<u>Amendment No. 1, dated March 28, 2008, to the Executive Employment Agreement between the Company and its Chief Medical Officer, Dr. Karl Mettinger, dated May 29, 2007</u>
4.14(c)*	<u>Amendment No. 2, dated March 31, 2008, to the Services Agreement between the Company and its Senior Vice President, Clinical and Regulatory Affairs, George Gill, dated October 16, 2001</u>
4.15(d)*	<u>Executive Employment Agreement, dated January 26, 2009, between Oncolytics Biotech (U.S.) Inc. and its Chief Medical Officer, Dr. Karl Mettinger</u>
4.16(d)*	<u>Executive Employment Agreement, dated January 22, 2009 between the Company and its Vice President, Intellectual Property, Mary Ann Dillahunty.</u>
4.17(e)*	<u>Amendment No. 2, dated January 1, 2011, to the Executive Employment Agreement between the Company and its Chief Executive Officer, Bradley Thompson, dated June 6, 2007</u>
4.18(f)*	<u>Employment Agreement, dated January 1, 2011 between the Company and its Senior Vice President, Clinical and Regulatory Affairs, George Gill.</u>
4.19(f)*	

- Executive Employment Agreement, dated November 10, 2011 between the Company and its Senior Vice President of Clinical Development and Chief Medical Officer, Gerard T. Kennealey.
- 4.20(g)* Executive Employment Agreement, dated March 22, 2013, between the Company and its Chief Operating Officer, Matthew Coffey
- 4.21(g)* Executive Employment Agreement, dated September 27, 2012, between Oncolytics Biotech (U.S.) Inc. and its Senior Vice President, Medical and Clinical Affairs Chief Medical Officer, Dr. Alan Tuchman
- 4.22(g)* Executive Employment Agreement, dated March 22, 2013, between the Company and its Chief Financial Officer, Kirk Look
- 4.23(g)* Executive Employment Agreement, dated March 22, 2013, between the Company and its Chief Executive Officer, Bradley Thompson
- 4.24(h)* Amending Agreement, dated March 12, 2014, between the Company and its Chief Executive Officer, Bradley Thompson
- 4.25(h)* Amending Agreement, dated March 12, 2014, between the Company and its Chief Financial Officer, Kirk Look
- 4.26(h)* Amending Agreement, dated March 12, 2014, between the Company and its Chief Operating Officer, Matthew Coffey
- 4.27(i)* Amending Agreement, dated March 12, 2015, between Oncolytics Biotech (U.S.) Inc. and its Senior Vice President, Medical and Clinical Affairs Chief Medical Officer, Dr. Alan Tuchman
- 4.28(i)* Amending Agreement, dated March 12, 2015, between Oncolytics Biotech (U.S.) Inc. and its Vice President, Intellectual Property, Mary Ann Dillahunt.
- 4.29(i)* Amending Agreement, dated March 12, 2015, between the Company and its Chief Executive Officer, Bradley Thompson
- 4.30(i)* Amending Agreement, dated March 12, 2015, between Oncolytics Biotech (U.S.) Inc. and its Senior Vice President, Clinical and Regulatory Affairs, George Gill.
- 4.31(i)* Amending Agreement, dated March 12, 2015, between the Company and its Chief Financial Officer, Kirk Look
- 4.32(i)* Amending Agreement, dated March 12, 2015, between the Company and its Chief Operating Officer, Matthew Coffey
- 4.33(j)* Amending Agreement, dated March 8, 2016, between the Company and its Chief Executive Officer, Bradley Thompson
- 4.34(j)* Amending Agreement, dated March 8, 2016, between the Company and its Chief Financial Officer, Kirk Look
- 4.35(j)* Amending Agreement, dated March 8, 2016, between the Company and its Chief Operating Officer, Matthew Coffey
- 4.36(j)* Amending Agreement, dated November 10, 2015, between Oncolytics Biotech (U.S.) Inc. and its Senior Vice President, Medical and Clinical Affairs Chief Medical Officer, Dr. Alan Tuchman
- 4.37(j)* Amending Agreement, dated March 8, 2016, between Oncolytics Biotech (U.S.) Inc. and its Senior Vice President, Medical and Clinical Affairs Chief Medical Officer, Dr. Alan Tuchman
- 4.38(j)* Amending Agreement, dated March 8, 2016, between Oncolytics Biotech (U.S.) Inc. and its Senior Vice President, Clinical and Regulatory Affairs, George Gill.
- 4.39(k)* Executive Employment Agreement, dated October 27, 2016, between Oncolytics Biotech (U.S.) Inc. and its Chief Medical Officer, Dr. Andres Gutierrez.
- 4.40(k)* Amending Agreement, dated February 23, 2017, between the Company and its Chief Executive Officer, Matthew Coffey.
- 4.41(k)* Amending Agreement, dated February 23, 2017, between the Company and its Chief Financial Officer, Kirk Look.
- 4.42(k)* Settlement Agreement and Release, dated December 5, 2016 between the Company and its former Chief Executive Officer, Brad Thompson.
- 4.43(l)* Employment Agreement, dated June 29, 2017 between Oncolytics Biotech (U.S.) Inc. and its President, Andrew de Guttadauro
- 4.44(l)#

License, development, supply and distribution agreement with Adlai Nortye Biopharma Co., Ltd dated November 14, 2017

- 4.45^{(1)*} Amending Agreement, dated March 8, 2018, between the Company and its Chief Executive Officer, Matthew Coffey.
- 4.46^{(1)*} Amending Agreement, dated March 8, 2018, between the Company and its Chief Financial Officer, Kirk Look.
- 4.47^{(1)*} Amending Agreement, dated March 8, 2018 between Oncolytics Biotech (U.S.) Inc. and its President, Andrew de Guttadauro
- 4.48^{(1)*} Amending Agreement, dated March 8, 2018, between Oncolytics Biotech (U.S.) Inc. and its Chief Medical Officer, Dr. Andres Gutierrez.

Subsidiaries

- 8.0 List of subsidiaries

Certifications

- 12.1 Certificate of the Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 12.2 Certificate of the Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 13.1 Certificate of the Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
- 13.2 Certificate of the Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

Other Exhibits

- 15.1 The Registrant's Management's Discussion and Analysis for the Year Ended December 31, 2018
- 15.2 Consent of Ernst & Young LLP
- 101.1 Interactive Data Files (XBRL-Related Documents)

* - Denotes management contract or agreement

- Certain portions of this exhibit have been redacted pursuant to a confidential treatment request filed with the SEC on March 19, 2018

- (a) Previously filed with the SEC on Form 20-F dated June 14, 2002.
- (b) Previously filed with the SEC on Form 20-F dated June 27, 2003.
- (c) Previously filed with the SEC on Form 20-F dated May 23, 2008.
- (d) Previously filed with the SEC on Form 20-F dated March 6, 2009.
- (e) Previously filed with the SEC on Form 20-F dated March 24, 2011.
- (f) Previously filed with the SEC on Form 20-F dated March 23, 2012.
- (g) Previously filed with the SEC on Form 20-F dated March 22, 2013.
- (h) Previously filed with the SEC on Form 20-F dated March 19, 2014.
- (i) Previously filed with the SEC on Form 20-F dated March 20, 2015.
- (j) Previously filed with the SEC on Form 20-F dated March 24, 2016.
- (k) Previously filed with the SEC on Form 20-F dated March 28, 2017.
- (l) Previously filed with the SEC on Form 20-F dated March 19, 2018.

SIGNATURE

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

Date: March 15, 2019

ONCOLYTICS BIOTECH INC.

/s/ Matthew Coffey
Matthew Coffey, PhD, MBA
Chief Executive Officer

/s/ Kirk Look
Kirk Look, CA
Chief Financial Officer

Consolidated Financial Statements

Oncolytics Biotech® Inc.
December 31, 2018 and 2017

STATEMENT OF MANAGEMENT'S RESPONSIBILITY

Management is responsible for the preparation and presentation of the consolidated financial statements, Management's Discussion and Analysis ("MD&A") and all other information in the Annual Report.

In management's opinion, the accompanying consolidated financial statements have been properly prepared within reasonable limits of materiality and in accordance with the appropriately selected International Financial Reporting Standards as issued by the International Accounting Standards Board consistently applied and summarized in the consolidated financial statements.

The consolidated financial statements include estimates that are necessary when transactions affecting the current accounting period cannot be finalized with certainty until after the balance sheet date. Based on careful judgments by management, such estimates have been properly reflected in the accompanying consolidated financial statements. The financial information presented elsewhere in the Annual Report has been reviewed to ensure consistency with that in the consolidated financial statements. The MD&A also includes information regarding the impact of current transactions and events, sources of liquidity and capital resources and risks and uncertainty. Actual results in the future may differ materially from our present assessment of this information because future events and circumstances may not occur as expected.

Systems of internal controls, including organizational and procedural controls and internal controls over financial reporting, assessed as reasonable and appropriate in the circumstances, are designed and maintained by management to provide reasonable assurance that assets are safeguarded from loss or unauthorized use and to produce reliable records for preparation of financial statements.

Ernst & Young LLP, an independent firm of Charter Professional Accountants, has been engaged, as approved by a vote of the shareholders' at the Company's most recent Annual General Meeting, to audit and provide their independent audit opinions on the following:

the Company's consolidated financial statements as at and for the year ended December 31, 2018; and
the effectiveness of the Company's internal control over financial reporting as at December 31, 2018.

Ernst & Young have full and free access to our Board of Directors and its Committees to discuss audit, financial reporting and related matters.

The Board of Directors is responsible for ensuring that management fulfills its responsibilities for financial reporting and internal control. The Board exercises this responsibility through the Audit Committee of the Board, which is comprised entirely of independent directors. This Committee meets with management and the external auditors to satisfy itself that management's responsibilities are properly discharged and to review the consolidated financial statements and MD&A before they are presented to the Board of Directors for approval. The consolidated financial statements have been approved by the Board on the recommendation of the Audit Committee.

/s/ Matt Coffey

/s/ Kirk Look

Matt Coffey, PhD, MBA
Chief Executive Officer

Kirk Look, CA
Chief Financial Officer

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The following report is provided by management in respect of the company's internal control over financial reporting (as defined in Rule 13a-15(f) and 15d-15(f) under the U.S. Securities Exchange Act of 1934):

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

1. Management is responsible for establishing and maintaining adequate internal control over the company's financial reporting.

2. Management has used the Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework (2013) in Internal Control - Integrated Framework to evaluate the effectiveness of the company's internal control over financial reporting.

3. Management has assessed the effectiveness of the company's internal control over financial reporting as at December 31, 2018, and has concluded that such internal control over financial reporting was effective as of that date. Additionally, based on this assessment, management determined that there were no material weaknesses in internal control over financial reporting as at December 31, 2018. Because of inherent limitations, systems of internal control over financial reporting may not prevent or detect misstatements and even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation.

4. The effectiveness of the company's internal control over financial reporting as at December 31, 2018 has been audited by Ernst & Young, independent auditor, as stated in their report which appears herein.

/s/ Matt Coffey

/s/ Kirk Look

Matt Coffey, PhD, MBA
Chief Executive Officer

Kirk Look, CA
Chief Financial Officer

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Oncolytics Biotech Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated statements of financial position of Oncolytics Biotech Inc. (the “Company”) as of December 31, 2018 and 2017, the related consolidated statements of loss, comprehensive loss, shareholders’ equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as at December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with International Financial Reporting Standards (IFRSs) as issued by the International Accounting Standards Board.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the Company’s internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”), and our report dated March 7, 2019 expressed an unqualified opinion thereon.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company’s consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

We have served as the Company's auditor since 1999.

Calgary, Canada
March 7, 2019

Report on Internal Control over Financial Reporting

To the Board of Directors and Shareholders of Oncolytics Biotech Inc.:

Opinion on Internal Control over Financial Reporting

We have audited Oncolytics Biotech Inc.'s (the "Company") internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework)," (the COSO criteria). In our opinion, Oncolytics Biotech Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018 based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements of Oncolytics Biotech Inc., which comprise the consolidated statements of financial position as at December 31, 2018 and 2017, the consolidated statements of loss, comprehensive loss, shareholders' equity and cash flows for each of the years in the three years ended December 31, 2018, and the related notes, and our report dated March 7, 2019 expressed an unqualified opinion thereon.

Basis for Opinion

Oncolytics Biotech Inc.'s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on Oncolytics Biotech Inc.'s internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to Oncolytics Biotech Inc. in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become

inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Calgary, Canada

March 7, 2019

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ONCOLYTICS BIOTECH INC.
CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

As at December 31,	Notes	2018 \$	2017 \$
Assets			
Current assets			
Cash and cash equivalents	5	13,699,881	11,836,119
Contract receivable	10	—	4,767,100
Other receivables		51,650	37,726
Prepaid expenses		700,986	1,176,063
Total current assets		14,452,517	17,817,008
Non-current assets			
Property and equipment	6	412,736	333,441
Total non-current assets		412,736	333,441
Total assets		14,865,253	18,150,449
Liabilities And Shareholders' Equity			
Current Liabilities			
Accounts payable and accrued liabilities		1,825,853	3,684,023
Contract liability	10	927,400	1,545,645
Other liabilities	11	61,322	—
Total current liabilities		2,814,575	5,229,668
Non-current liabilities			
Contract liability	10	5,802,887	4,636,935
Other liabilities	11	52,428	—
Total non-current liabilities		5,855,315	4,636,935
Total liabilities		8,669,890	9,866,603
Commitments and contingencies	11, 12 and 17		
Shareholders' equity			
Share capital			
Authorized: unlimited			
Issued:			
December 31, 2018 – 17,399,749	7	285,193,061	271,710,138
December 31, 2017 – 141,805,722 pre-consolidation			
December 31, 2017 – 14,926,840 post-consolidation			
Warrants	7	3,617,570	3,617,900
Contributed surplus	8	28,260,613	27,028,238
Accumulated other comprehensive income		607,504	373,730
Accumulated deficit		(311,483,385)	(294,446,160)
Total shareholders' equity		6,195,363	8,283,846
Total liabilities and equity		14,865,253	18,150,449
See accompanying notes			

On behalf of the Board:
/s/ Angela Holtham /s/ Wayne Pisano
Director Director

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ONCOLYTICS BIOTECH INC.
CONSOLIDATED STATEMENTS OF LOSS AND COMPREHENSIVE LOSS

For the years ending December 31,	Notes	2018 \$	2017 \$	2016 \$
Expenses				
Research and development	8, 19, 20	9,417,888	9,392,623	9,770,007
Operating	8, 19, 20	7,244,791	6,212,831	5,524,500
Loss before the following		(16,662,679)	(15,605,454)	(15,294,507)
Interest		173,496	130,101	163,902
Loss before income taxes		(16,489,183)	(15,475,353)	(15,130,605)
Income tax expense	13	(548,042)	(141,498)	(9,374)
Net loss		(17,037,225)	(15,616,851)	(15,139,979)
Other comprehensive income (loss) items that may be reclassified to net loss				
Translation adjustment		233,774	(180,330)	(206,918)
Net comprehensive loss		(16,803,451)	(15,797,181)	(15,346,897)
Basic and diluted loss per common share	9	(1.06)	(1.12)	(1.20)
Weighted average number of shares (basic and diluted)		16,016,366	13,936,387	12,618,942
See accompanying notes				

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ONCOLYTICS BIOTECH INC.
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

	Notes	Share \$	Capital \$	Warrants	Contributed Surplus \$	Accumulated Other Comprehensive Income \$	Accumulated Deficit \$	Total \$
As at December 31, 2015		261,324,692	—		26,277,966	760,978	(263,689,330)	24,674,306
Net loss and other comprehensive income		—	—	—	—	(206,918)	(15,139,979)	(15,346,897)
Issued pursuant to incentive share award plan	8	41,000	—	—	(41,000)	—	—	—
Issued pursuant to "At the Market" Agreement	7	1,456,296	—	—	—	—	—	1,456,296
Share based compensation	8	—	—	—	406,078	—	—	406,078
Share issue costs	7	(500,163)	—	—	—	—	—	(500,163)
As at December 31, 2016		262,321,825	—	—	26,643,044	554,060	(278,829,309)	10,689,620
Net loss and other comprehensive loss		—	—	—	—	(180,330)	(15,616,851)	(15,797,181)
Issued pursuant to stock option plan	8	536,949	—	—	(193,509)	—	—	343,440
Issued pursuant to "At the Market" Agreement	7	2,348,821	—	—	—	—	—	2,348,821
Issued pursuant to public offering	7	7,893,600	3,617,900	—	—	—	—	11,511,500
Share based compensation	8	—	—	—	578,703	—	—	578,703
Share issue costs	7	(1,391,057)	—	—	—	—	—	(1,391,057)
As at December 31, 2017		271,710,138	3,617,900	—	27,028,238	373,730	(294,446,160)	8,283,846
Net loss and other comprehensive income		—	—	—	—	233,774	(17,037,225)	(16,803,451)
Issued pursuant to "At the Market" Agreement	7	620,010	—	—	—	—	—	620,010
Issued pursuant to public offering	7	11,606,882	—	—	—	—	—	11,606,882
Issued pursuant to Common Stock Purchase Agreement	7	3,314,097	—	—	—	—	—	3,314,097
Issued pursuant to stock option plan	8	197,245	—	—	(73,707)	—	—	123,538
Issued pursuant to incentive share award plan	8	109,751	—	—	(109,751)	—	—	—
Issued pursuant to warrant agreement	7	1,747	(330)	—	—	—	—	1,417
Share based compensation	8	—	—	—	1,415,833	—	—	1,415,833
Share issue costs	7	(2,366,809)	—	—	—	—	—	(2,366,809)
As at December 31, 2018		285,193,061	3,617,570	—	28,260,613	607,504	(311,483,385)	6,195,363
See accompanying notes								

ONCOLYTICS BIOTECH INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

For the years ending December 31,	Notes	2018 \$	2017 \$	2016 \$
Operating Activities				
Net loss for the year		(17,037,225)	(15,616,851)	(15,139,979)
Depreciation - property and equipment		95,375	90,768	162,233
Share based compensation	8, 19, 20	1,415,833	578,703	406,078
Unrealized foreign exchange gain		(374,337)	(124,793)	(139,810)
Onerous lease contract	11	67,588	—	—
Amortization - lease incentive liability	11	8,189	—	—
Net change in non-cash working capital	16	3,904,339	180,855	2,233,865
Cash used in operating activities		(11,920,238)	(14,891,318)	(12,477,613)
Investing Activities				
Acquisition of property and equipment	6	(107,466)	(105,765)	(23,527)
Redemption (purchase) of short-term investments		—	2,088,800	(27,823)
Cash (used in) provided by investing activities		(107,466)	1,983,035	(51,350)
Financing Activities				
Proceeds from Common Stock Purchase Agreement	7	2,533,980	—	—
Proceeds from "At the Market" equity distribution agreement	7	451,675	2,103,166	956,133
Proceeds from public offering	7	10,188,526	10,366,098	—
Proceeds from exercise of stock options	8	123,538	343,440	—
Proceeds from exercise of warrants	7	1,417	—	—
Cash provided by financing activities		13,299,136	12,812,704	956,133
Increase (decrease) in cash		1,271,432	(95,579)	(11,572,830)
Cash and cash equivalents, beginning of year		11,836,119	12,034,282	24,016,275
Impact of foreign exchange on cash and cash equivalents		592,330	(102,584)	(409,163)
Cash and cash equivalents, end of year		13,699,881	11,836,119	12,034,282
See accompanying notes				

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ONCOLYTICS BIOTECH INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
December 31, 2018

Note 1: Incorporation and Nature of Operations

Oncolytics Biotech Inc. was incorporated on April 2, 1998 under the Business Corporations Act (Alberta) as 779738 Alberta Ltd. On April 8, 1998, we changed our name to Oncolytics Biotech Inc.

Our consolidated financial statements for the year ended December 31, 2018, were authorized for issue in accordance with a resolution of the Board of Directors (the "Board") on March 7, 2019. We are a limited company incorporated and domiciled in Canada. Our shares are publicly traded on the Nasdaq Capital Markets and the Toronto Stock Exchange. Our registered office is located at 210, 1167 Kensington Crescent NW, Calgary, Alberta, Canada.

We are a development stage biopharmaceutical company that focuses on the discovery and development of pharmaceutical products for the treatment of cancers that have not been successfully treated with conventional therapeutics. Our lead product, pelareorep, is a potential immuno-oncology viral-agent that may be a novel treatment for certain types of cancer and may be an alternative to existing cytotoxic or cytostatic therapies. Our clinical development program for pelareorep emphasizes three programs: chemotherapy combinations to assist the escape of the virus from the vasculature and enhance its distribution in the tumor; immuno-therapy combinations to create an inflamed phenotype promoting synergies with immune checkpoint inhibitors; and immune modulator/targeted combinations to upregulate natural killer cells promoting synergies with targeted therapies.

Note 2: Basis of Financial Statement Presentation

Our consolidated financial statements include our financial statements and the financial statements of our subsidiaries Oncolytics Biotech (Barbados) Inc., Oncolytics Biotech (US) Inc., and Oncolytics Biotech (UK) Inc. and are presented in Canadian dollars, our functional currency.

The accounts are prepared on the historical cost basis, except for certain assets and liabilities which are measured at fair value as explained in the notes to these financial statements.

These consolidated financial statements have been prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board ("IASB").

Basis of consolidation

Our accounts include the accounts of Oncolytics Biotech Inc. and our subsidiaries. Subsidiaries are entities over which we have control which is achieved when we are exposed, or have the rights, to variable returns from our involvement with the investee and has the ability to affect those returns through our power to govern. Accounting policies of subsidiaries are consistent with our accounting policies and all intra-group transactions, balances, income and expenses are eliminated on consolidation.

A change in ownership interest of a subsidiary, without a change in control, is accounted for as an equity transaction.

Note 3: Summary of Significant Accounting Policies

The consolidated financial statements have, in management's opinion, been properly prepared within reasonable limits of materiality and within the framework of the significant accounting policies summarized below.

Deferred income taxes

We follow the liability method of accounting for income taxes. Under the liability method, deferred income taxes are recognized for the difference between financial statement carrying values and the respective income tax basis of assets and liabilities (temporary differences). Deferred income tax assets and liabilities are measured using substantively

enacted income tax rates and laws expected to apply in the years in which temporary differences are expected to be recovered or settled. The effect on deferred income tax assets and liabilities of a change in tax rates is charged or credited to income, except when it is related to items charged or credited to either other comprehensive income or directly to equity.

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ONCOLYTICS BIOTECH INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
December 31, 2018

Financial instruments

Classification and measurement

Financial assets

Financial assets are initially measured at fair value. In the case of a financial asset not at fair value through profit or loss, the financial asset is initially measured at fair value plus or minus transaction costs.

Under IFRS 9 Financial Instruments ("IFRS 9"), financial assets are subsequently measured at amortised cost, fair value through profit or loss (FVPL), or fair value through other comprehensive income (FVOCI). The classification is based on two criteria: the Company's business model for managing the assets; and whether the financial asset's contractual cash flows represent 'solely payments of principal and interest' on the principal amount outstanding (the 'SPPI criterion').

Our financial assets include cash and cash equivalents and other receivables. The classification and measurement of these financial assets are at amortized cost, as these assets are held within our business model with the objective to hold the financial assets in order to collect contractual cash flows that meet the SPPI criterion.

Financial liabilities

Financial liabilities are initially measured at fair value and are subsequently measured at amortised cost. Our financial liabilities include trade accounts payable.

Impairment

Under IFRS 9, accounting for impairment losses for financial assets uses a forward-looking expected credit loss (ECL) approach.

IFRS 9 requires that we record a loss allowance for ECLs on all financial assets not held at FVPL. ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that the Company expects to receive. The shortfall is then discounted at an approximation to the asset's original effective interest rate.

We applied the simplified approach permitted by IFRS 9 and calculated ECLs based on lifetime expected credit losses. We have established a provision matrix that is based on historical credit loss experience, adjusted for forward-looking factors specific to the debtors and the economic environment.

Fair Value Measurement

Fair value is the price that would be received to sell an asset, or paid to transfer a liability in an orderly transaction between market participants, at the measurement date. In determining the fair value measurement of our financial instruments we prioritize the related inputs used in measuring fair value into the following hierarchy:

Level 1 - Quoted prices (unadjusted) in active markets for identical assets or liabilities;

Level 2 - Inputs other than quoted prices included within Level 1 that are either directly or indirectly observable;

Level 3 - Unobservable inputs in which little or no market activity exists, therefore requiring an entity to develop its own assumptions about the assumptions that market participants would use in pricing.

Foreign currency translation

The financial statements for each of our subsidiaries are prepared using their functional currency. Our presentation currency is the Canadian dollar which is also Oncolytics Biotech Inc.'s functional currency. Foreign currency

transactions are translated into the functional currency using exchange rates prevailing at the dates of the transactions. Exchange differences resulting from the settlement of such transactions and from the translation at exchange rates ruling at the statement of financial position date of monetary assets and liabilities denominated in currencies other than the functional currency are recognized directly in the consolidated statement of loss and comprehensive loss.

Exceptions to this are where the monetary items form part of the net investment in a foreign operation and the foreign operation's functional currency is the local currency. These exchange differences are initially recognized in equity. The statement of financial position of foreign operations is translated into Canadian dollars using the exchange rate at the statement of financial position date

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ONCOLYTICS BIOTECH INC.
 NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
 December 31, 2018

and the income statements are translated into Canadian dollars using the average exchange rate for the period. Where this average is not a reasonable approximation of the cumulative effect of the rates prevailing on the transaction dates, the exchange rate on the transaction date is used. Exchange differences on translation into Canadian dollars are recognized as a separate component of equity. On disposal of a foreign operation, any cumulative exchange differences held in equity are transferred to the consolidated statement of loss and comprehensive loss.

Investment tax credits

Investment tax credits ("ITCs") relating to qualifying scientific research and experimental development expenditures that are refundable are accounted for as a reduction in research and development expenditures. ITCs that are non-refundable, but are recoverable against future taxes payable, are accrued only when there is reasonable assurance that the credits will be realized.

ITCs are subject to technical and financial review by the Canadian tax authorities on a project-by-project basis. Therefore, amounts ultimately received may vary significantly from the amounts recorded. Any such differences are recorded as an adjustment to the recognized amount in the year the review by the Canadian tax authority is completed and the results are made known to us.

Loss per common share

Basic loss per common share is determined using the weighted average number of common shares outstanding during the period.

We use the treasury stock method to calculate diluted loss per common share. Under this method, diluted loss per common share is computed in a manner consistent with basic loss per common share except that the weighted average common shares outstanding are increased to include additional common shares from the assumed exercise of options and warrants, if dilutive. The number of additional common shares is calculated by assuming that any outstanding "in the money" options, restricted share units, performance share units and warrants were exercised at the later of the beginning of the period or the date of issue and that the proceeds from such exercises were used to acquire shares of common stock at the average market price during the reporting period.

Property and equipment

Property and equipment are recorded at cost. Depreciation is provided on bases and at rates designed to amortize the cost of the assets over their estimated useful lives. Depreciation is recorded using the declining balance method at the following annual rates:

Office equipment and furniture	20%
Medical equipment	20%
Computer equipment	30%
Leasehold improvements	Straight-line over the term of the lease

Research and development costs

Research costs are expensed as incurred, net of recoveries. We record accruals for the estimated costs of our research and development activities performed by third parties. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows to our vendors. Payments under the contracts depend on factors such as the achievement of certain events, successful enrollment of patients, and completion of certain clinical trial activities. We generally accrue costs associated with the treatment phase of clinical trials based on the total estimated cost of the treatment phase on a per patient basis and we expense the per patient cost ratably over the estimated patient treatment period based on patient enrollment in the trials. Advance payments for goods or services that will be used or rendered for future research and development activities are capitalized as prepaid expenses and recognized as expense as the related goods are delivered or the related services are performed. We base our estimates on the best information available at the time. However, additional information may become available to us which may allow us to make a more accurate estimate in future periods. In this event, we may be required to record adjustments to research and development expenses in future periods when the actual level of

activity becomes more certain. Such increases or decreases in cost are generally considered to be changes in estimates and will be reflected in research and development expenses in the period identified.

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ONCOLYTICS BIOTECH INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
December 31, 2018

Development costs that meet specific criteria related to technical, market and financial feasibility will be capitalized. To date, all development costs have been expensed.

Revenue recognition

Revenue relates to a long-term contract associated with a regional licensing agreement (the "Licensing Agreement") with Adlai Nortye Biopharma Co., Ltd. ("Adlai"). The pricing for the contract was based on the specific negotiations with Adlai and includes non-refundable upfront license fees, development and regulatory milestone payments, royalties and sales-based milestone payments. We account for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable.

Under the Licensing Agreement, we have granted a regional license to our intellectual property. The granting of this license is accounted for as one performance obligation. We have determined that we provide Adlai with a right to access our intellectual property, and therefore recognize revenue related to the upfront license fee over time. Revenue is recognized based on the extent of progress towards completion of the performance obligation using the input method. Under the input method, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligation. We use this method because Adlai receives and consumes the benefit of our intellectual property as we undertake activities that impact the intellectual property. Management must use judgment in making assumptions and estimates regarding total estimated costs, the complexity of the work to be performed, and the length of time to complete the performance obligation, among other variables.

The contract also provides for development and regulatory milestone payments, royalties and sales-based milestone payments. These amounts are contingent on the occurrence of a future event and therefore give rise to variable consideration. We estimate variable consideration at the most likely amount to which we expect to be entitled. We include estimated amounts in the transaction price when it becomes highly probable that the amount will not be subject to significant reversal when the uncertainty associated with the variable consideration is resolved. Our estimates of variable consideration and determination of whether to include estimated amounts in the transaction price are based largely on an assessment of our anticipated performance and all information (historical, current and forecasted) that is reasonably available to us. Based on this information and related analysis, any quarterly adjustments to revenue are recognized as necessary in the period they become known.

The upfront license fee is not considered a significant financing component because it is used to meet working capital demands that can be higher in the early stages of a contract and to protect us from the other party failing to adequately complete some or all of its obligations under the contract.

Revenue from sales-based royalties and the achievement of annual sales volumes will be recognized when the subsequent sale occurs, as the license of the intellectual property is the predominant item to which the royalty relates. We consider payments associated with the achievement of annual sales volumes to be, in substance, royalty payments and we will recognize such sales-based payments upon achievement of such sales volumes, provided that collection is reasonably assured.

Contract receivable - Contract receivable includes amounts billed and currently due from customers. When appropriate, we provide for an allowance for doubtful accounts by reserving for specifically identified doubtful accounts. We perform a review of our customer's credit risk and payment histories, including payments made subsequent to year-end.

Contract liability - Our contract liability includes upfront license fees and billings in excess of revenue recognized. Contract liabilities are recognized as revenue as or when we perform under the contract. We classify our contract liability as current or noncurrent based on the timing of when we expect to recognize revenue.

Share based payments

Stock op