November 5, 2021

Oncolytics Biotech® Reports 2021 Third Quarter Development Highlights and Financial Results

Clinical breast cancer data indicate pelareorep-induced changes in blood T cell populations may be a predictive biomarker

Advanced collaboration with Roche and AIO by initiating dosing in phase 1/2 GOBLET trial in gastrointestinal cancers

Strong financial position with approximately $48 million and cash runway into 2023

Management hosting conference call and webcast today at 8:00 a.m. ET

SAN DIEGO and CALGARY, AB, Nov. 5, 2021 /CNW/ -- Oncolytics Biotech® Inc. (NASDAQ: ONCY) (TSX: ONC) today announced its financial results and development highlights for the quarter ended September 30, 2021. All dollar amounts are expressed in Canadian currency unless otherwise noted.

"Over the past few months, we achieved key milestones that have advanced pelareorep's development programs and further highlighted the advantages of its broadly applicable mechanism of action," said Dr. Matt Coffey, President and Chief Executive Officer of Oncolytics Biotech Inc. "These milestones include the reporting of new clinical biomarker data from our AWARE-1 breast cancer study, which we are pleased to be announcing today. These data further demonstrate pelareorep's immunotherapeutic effects and its ability to synergize with checkpoint inhibition. It also indicates that changes in peripheral blood T cell populations may be predictive of patient response. This exciting finding could improve our chances of success in subsequent studies by allowing for early identification of patients most likely to benefit from pelareorep therapy. We are evaluating this hypothesis as part of our BRACELET-1 breast cancer trial, which is assessing the safety, efficacy, and pharmacodynamic effects of pelareorep with and without checkpoint inhibition to support the advancement of our lead program to a registrational study."

Dr. Coffey continued, "Beyond our lead program, we also advanced our collaboration with Roche and AIO with the initiation of dosing in our phase 1/2 GOBLET trial. This trial addresses a pressing unmet need in gastrointestinal cancer by leveraging pelareorep's immunotherapeutic effects to overcome checkpoint inhibitor resistance and then increase the proportion of patients responding to checkpoint inhibition therapies. Looking forward, we will continue to strategically leverage collaborations and partnerships to drive pelareorep's development as an enabling technology for various immuno-oncology agents across multiple indications with high unmet needs. We believe this will allow us to maximally benefit from pelareorep's value-creating potential while maintaining focus on our lead breast cancer program."

Third Quarter and Subsequent Highlights

Breast Cancer Program

AWARE-1 data indicate that changes in peripheral blood T cell populations may be a predictive biomarker of pelareorep therapy

Additional analyses from AWARE-1's first two cohorts being announced today focus on changes in the peripheral blood and tumors' T cell populations of HR+/HER2- early-stage breast cancer patients following treatment with pelareorep and letrozole without (cohort 1) or with (cohort 2) the PD-L1 inhibitor atezolizumab. These changes were compared to assessments of CelTIL score (a measure of tumor cellularity and inflammation) and tumor-infiltrating CD8+ T cells, two metrics that are associated with favorable clinical outcomes. Highlights from the analyses using Spearman's Rank-Order Correlation not adjusted for multiplicity are shown below:

- Pooled analysis across cohorts showed:
    - A statistically significant decrease in peripheral blood T cell diversity post-treatment, explained by the expansion and generation of new middle frequency anti-viral and anti-tumor T cell clones.
    - A statistically significant association between pre- vs. post-treatment decreases in peripheral blood T cell diversity and increased post-treatment CelTIL score.
    - A statistically significant association between increased peripheral blood T cell fraction pre-treatment and tumor-infiltrating CD8+ T cells post-treatment.
- Comparative analysis of cohort 1 vs. cohort 2 showed:
    - The addition of atezolizumab enhanced pelareorep's ability to generate and expand new anti-viral and anti-tumor T cell clones.
    - A greater decrease in pre- vs. post-treatment changes in peripheral blood T cell diversity in cohort 2 compared to cohort 1.
    - A numerical association between decreased post-treatment T cell diversity in the peripheral blood and pre- vs. post-treatment increases in tumor-infiltrating CD8+ T cells in cohort 1. This association reached statistical significance in cohort 2 with the addition of atezolizumab.

Collectively, these analyses further demonstrate pelareorep's immunotherapeutic mechanism of action and its ability to synergize with checkpoint inhibitors such as atezolizumab. They also suggest that changes in peripheral blood T cell populations are predictive of response to pelareorep therapy and could potentially serve as the basis for a blood-based biomarker to inform the design of subsequent studies.

Oncolytics has completed its planned analyses of AWARE-1's first two cohorts, which enrolled patients with HR+/HER2- breast cancer. Evaluation of these cohorts was the core objective of AWARE-1, as HR+/HER2- is the breast cancer subtype Oncolytics intends to examine in a future registrational study. Following the completion of these cohorts, Oncolytics amended the protocol of the trial so that all remaining cohorts focus exclusively on patients with the HER2+ breast cancer subtype. Together with AWARE-1's first two cohorts and the ongoing IRENE trial in triple-negative breast cancer, these cohorts will facilitate the evaluation of pelareorep in all breast cancer subtypes.

Partner Adlai Nortye dosed first patient in Chinese bridging trial evaluating pelareorep-paclitaxel combination treatment in breast cancer

The bridging clinical trial is evaluating the safety, tolerability, and preliminary efficacy of pelareorep-paclitaxel combination therapy in Chinese patients with advanced or metastatic breast cancer. Results are expected to allow Adlai Nortye to include data from Oncolytics' North American IND-213 and BRACELET-1 trials in a future submission to Chinese regulators. This may accelerate pelareorep's clinical development path in China, which has a rapidly growing pharmaceutical market that is currently the second largest in the world.

Gastrointestinal Cancers Program

Dosed first patient in the phase 1/2 GOBLET trial in collaboration with Roche and AIO

GOBLET is a phase 1/2 multi-center trial designed to evaluate the use of pelareorep in combination with Roche's anti-PD-L1 checkpoint inhibitor atezolizumab in patients with metastatic pancreatic, metastatic colorectal, and advanced anal cancers. The trial is being managed by AIO, a leading academic cooperative medical oncology group based in Germany. In addition to evaluating the safety and efficacy of pelareorep-atezolizumab treatment, the trial also seeks to validate CEACAM6 and T cell clonality as predictive biomarkers, which may improve the patient selection process in future registration studies and increase their likelihood of success. The trial builds off previously reported phase 2 data demonstrating clinical proof-of-concept for pelareorep-checkpoint inhibitor combination therapy in pancreatic cancer (link to PR, link to poster), as well as prior early clinical data showing that pelareorep-based combinations stimulated an adaptive immune response and led to a greater than 90% clinical benefit rate in KRAS mutated colorectal cancer patients (link to PR, link to study), and a greater than 80% increase in progression-free survival in pancreatic cancer patients with low levels of CEACAM6 expression (link to PR, link to poster).

Additional Immunotherapeutic Combinations and Opportunities

Announced preclinical data demonstrating the synergistic immunotherapeutic effects of pelareorep combined with radiotherapy

Preclinical data presented in a poster at The International Conference on Immunotherapy Radiotherapy Combinations showed that combination treatment with pelareorep and radiotherapy promoted the tumor infiltration of anti-cancer T cells and prolonged survival in a murine cancer model. Increased infiltration of anti-cancer T cells was observed both in tumors exposed to local treatment with radiation and pelareorep, and in tumors located away from the treatment site. Collectively, these data are indicative of the synergistic

immunotherapeutic effects of the pelareorep-radiotherapy combination (link to PR, link to poster).

Financial Highlights

- As of September 30, 2021, the Company reported $48.1 million in cash and cash equivalents.
- Operating expense for the third quarter of 2021 was $2.9 million, compared to $2.5 million in the third quarter of 2020.
- R&D expense for the third quarter of 2021 was $3.3 million, compared to $3.9 million in the third quarter of 2020.
- Net cash used in operating activities for the third quarter of 2021 was $3.7 million, compared to $6.1 million for the third quarter of 2020.
- The net loss for the third quarter of 2021 was $4.9 million, compared to a net loss of $6.7 million in the third quarter of 2020. The basic and diluted loss per share was $0.09 in the third quarter of 2021, compared to a basic and diluted loss per share of $0.16 in the third quarter of 2020.

Anticipated Milestones and Catalysts

- Completion of enrollment in phase 2 BRACELET-1 metastatic breast cancer study: Q4 2021/Q1 2022
- Interim safety update from phase 2 IRENE study in triple-negative breast cancer: Q4 2021
- Multiple myeloma study data: Q4 2021

Oncolytics expects to provide updates on the timing of the following milestones:

- Interim safety update from BRACELET-1 metastatic breast cancer study
- Phase 2 BRACELET-1 metastatic breast cancer study: final data

Webcast and Conference Call
Management will host a conference call for analysts and institutional investors at 8:00 a.m. ET today, November 5, 2021. To access the call, please dial (888) 664-6383 (North America) or (416) 764-8650 (International) and, if needed, provide confirmation number 7285-9440. A live webcast of the call will also be available by clicking here or on the Investor Relations page of Oncolytics' website (LINK) and will be archived for three months. A dial-in replay will be available for one week and can be accessed by dialing (888) 390-0541 (North America) or (416) 764-8677 (International) and using replay code: 859-440#.

ONCOLYTICS BIOTECH INC.
INTERIM CONSOLIDATED STATEMENTS OF FINANCIAL POSITION
(unaudited)
(in Canadian dollars, except share amounts)

As at	September 30, 2021	December 31, 2020
Assets		
Current assets		
Cash and cash equivalents	**$ 48,087,369**	$ 31,219,574
Other receivables	**251,319**	89,661
Prepaid expenses	**3,254,568**	2,427,200
Total current assets	**51,593,256**	33,736,435
Non-current assets		
Property and equipment	**340,726**	236,664
Right-of-use assets	**659,354**	372,468
Total non-current assets	**1,000,080**	609,132
Total assets	**$ 52,593,336**	$ 34,345,567
Liabilities And Shareholders' Equity		
Current Liabilities		
Accounts payable and accrued liabilities	**$ 2,334,251**	$ 1,805,015
Other liabilities	**—**	123,985
Lease liabilities	**268,762**	248,885
Warrant derivative	**106,063**	531,228
Total current liabilities	**2,709,076**	2,709,113
Non-current liabilities		
Contract liability	**6,730,287**	6,730,287
Lease liabilities	**441,981**	153,174
Total non-current liabilities	**7,172,268**	6,883,461
Total liabilities	**9,881,344**	9,592,574
Commitments and contingencies		
Shareholders' equity		
Share capital Authorized: unlimited Issued: September 30, 2021 – 54,976,453 December 31, 2020 – 46,166,980	**391,166,760**	356,824,172
Warrants	**3,617,570**	3,617,570
Contributed surplus	**33,185,565**	31,022,356
Accumulated other comprehensive income	**406,450**	400,225
Accumulated deficit	**(385,664,353)**	(367,111,330)
Total shareholders' equity	**42,711,992**	24,752,993
Total liabilities and shareholder's equity	**$ 52,593,336**	$ 34,345,567

ONCOLYTICS BIOTECH INC.
INTERIM CONSOLIDATED STATEMENTS OF LOSS AND COMPREHENSIVE LOSS
(unaudited)
(in Canadian dollars, except share amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	**2020**	**2021**	**2020**
Expenses				
Research and development	**$ 3,278,705**	$ 3,854,272	**$ 9,240,900**	$ 8,883,046
Operating	**2,876,312**	2,461,642	**9,539,188**	8,503,602
Loss before the following	**(6,155,017)**	(6,315,914)	**(18,780,088)**	(17,386,648)
Change in fair value of warrant derivative	**52,216**	60,264	**(32,405)**	3,705,096
Foreign exchange gain (loss)	**1,212,070**	(506,349)	**190,164**	393,358
Interest income, net	**25,740**	13,367	**76,457**	111,809
Loss before income taxes	**(4,864,991)**	(6,748,632)	**(18,545,872)**	(13,176,385)
Income tax expense	**(7,151)**	—	**(7,151)**	—
Net loss	**(4,872,142)**	(6,748,632)	**(18,553,023)**	(13,176,385)
Other comprehensive income (loss) items that may be reclassified to net loss				
Translation adjustment	**94,907**	(68,212)	**6,225**	80,557
Net comprehensive loss	**$ (4,777,235)**	$ (6,816,844)	**$ (18,546,798)**	$ (13,095,828)
Basic and diluted loss per common share	**$ (0.09)**	$ (0.16)	**$ (0.35)**	$ (0.34)
Weighted average number of shares (basic and diluted)	**54,960,650**	41,720,230	**53,003,541**	39,072,900

ONCOLYTICS BIOTECH INC.
INTERIM CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(unaudited)
(in Canadian dollars)

	Share Capital	Warrants	Contributed Surplus	Accumulated Other Comprehensive Income	Accumulated Deficit	
As at December 31, 2019	$ 311,077,859	$ 3,617,570	$ 29,338,849	$ 464,101	$ (344,606,273)	$
Net loss and other comprehensive loss	—	—	—	80,557	(13,176,385)	(1
Issued pursuant to stock option plan	162,812	—	(60,024)	—	—	
Issued pursuant to incentive share award plan	358,690	—	(358,690)	—	—	
Issued pursuant to "At the Market" Agreement	28,147,501	—	—	—	—	2
Issued pursuant to warrant derivative exercised	6,332,778	—	—	—	—	
Share-based compensation	—	—	854,521	—	—	
Share issue costs	(1,263,170)	—	—	—	—	(
As at September 30, 2020	$ 344,816,470	$ 3,617,570	$ 29,774,656	$ 544,658	$ (357,782,658)	$ 2

As at December 31, 2020	$ 356,824,172	$ 3,617,570	$ 31,022,356	$ 400,225	$ (367,111,330)	$ 2
Net loss and other comprehensive income	—	—	—	6,225	(18,553,023)	(1
Issued pursuant to stock option plan	321,697	—	(120,747)	—	—	
Issued pursuant to incentive share award plan	413,282	—	(413,282)	—	—	
Issued pursuant to "At the Market" Agreement	34,168,071	—	—	—	—	3
Issued pursuant to warrant derivative exercised	686,616	—	—	—	—	
Share-based compensation	—	—	2,697,238	—	—	
Share issue costs	(1,247,078)	—	—	—	—	(
As at September 30, 2021	**$ 391,166,760**	**$ 3,617,570**	**$ 33,185,565**	**$ 406,450**	**$ (385,664,353)**	**$ 4**

ONCOLYTICS BIOTECH INC.
INTERIM CONSOLIDATED STATEMENTS OF CASH FLOWS
(unaudited)
(in Canadian dollars)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	**2020**	**2021**	**2020**
Operating Activities				
Net loss for the period	**$ (4,872,142)**	$ (6,748,632)	**$ (18,553,023)**	$ (13,176,385)
Depreciation - property and equipment	**11,089**	21,891	**106,979**	67,520
Depreciation - right-of-use-assets	**73,434**	87,878	**248,111**	271,034
Share-based compensation	**1,006,920**	201,076	**2,697,238**	854,521
Interest expense on lease liabilities	**27,589**	17,970	**65,848**	51,064
Unrealized foreign exchange (gain) loss	**(1,153,206)**	360,258	**79,925**	(368,419)
Change in fair value of warrant derivative	**(52,216)**	(60,264)	**32,405**	(3,705,096)
Net change in non-cash working capital	**1,225,536**	(3,293)	**(775,818)**	(331,243)
Cash used in operating activities	**(3,732,996)**	(6,123,116)	**(16,098,335)**	(16,337,004)
Investing Activities				
Acquisition of property and equipment	**(204,638)**	(15,556)	**(211,236)**	(29,305)
Cash used in investing activities	**(204,638)**	(15,556)	**(211,236)**	(29,305)
Financing Activities				
Proceeds from exercise of stock options	**4,834**	—	**200,950**	102,788
Proceeds from exercise of warrant derivative	**—**	—	**230,946**	1,696,460
Proceeds from "At the Market" equity distribution agreement	**(9,230)**	3,597,300	**32,920,993**	26,884,331
Payment of lease liabilities	**(75,274)**	(114,838)	**(285,502)**	(347,946)
Cash (used) provided by financing activities	**(79,670)**	3,482,462	**33,067,387**	28,335,633
(Decrease) increase in cash	**(4,017,304)**	(2,656,210)	**16,757,816**	11,969,324
Cash and cash equivalents, beginning of period	**50,799,432**	29,911,351	**31,219,574**	14,148,021
Impact of foreign exchange on cash and cash equivalents	**1,305,241**	(544,339)	**109,979**	593,457
Cash and cash equivalents, end of period	**$ 48,087,369**	$ 26,710,802	**$ 48,087,369**	$ 26,710,802

About Oncolytics Biotech Inc.

Oncolytics is a biotechnology company developing pelareorep, an intravenously delivered immunotherapeutic agent. This compound induces anti-cancer immune responses and promotes an inflamed tumor phenotype -- turning "cold" tumors "hot" -- through innate and adaptive immune responses to treat a variety of cancers.

Pelareorep has demonstrated synergies with immune checkpoint inhibitors and may also be synergistic with other approved oncology treatments. Oncolytics is currently conducting and planning clinical trials evaluating pelareorep in combination with checkpoint inhibitors and targeted therapies in solid and hematological malignancies as it advances towards a registration study in metastatic breast cancer. For further information, please visit: www.oncolyticsbiotech.com.

This press release contains forward-looking statements, within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended and forward-looking information under applicable Canadian securities laws (such forward-looking statements and forward-looking information are collectively referred to herein as "forward-looking statements"). Forward-looking statements contained in this press release include statements regarding Oncolytics' belief as to the potential and benefits of pelareorep as a cancer therapeutic; Oncolytics' expectations as to the purpose, design, outcomes and benefits of its current or pending clinical trials involving pelareorep; our plans and expectations regarding a potential registrational study; our expectations regarding the Adlai Nortye bridging clinical study and

the potential benefits therefrom; our plans to further develop pelareorep through collaborations and partnering opportunities; our upcoming milestones and catalysts and the anticipated timing of release of updates in respect thereof; and other statements related to anticipated developments in Oncolytics' business and technologies. In any forward-looking statement in which Oncolytics expresses an expectation or belief as to future results, such expectations or beliefs are expressed in good faith and are believed to have a reasonable basis, but there can be no assurance that the statement or expectation or belief will be achieved. Such forward-looking statements involve known and unknown risks and uncertainties, which could cause Oncolytics' actual results to differ materially from those in the forward-looking statements. Such risks and uncertainties include, among others, the availability of funds and resources to pursue research and development projects, the efficacy of pelareorep as a cancer treatment, the success and timely completion of clinical studies and trials, Oncolytics' ability to successfully commercialize pelareorep, uncertainties related to the research and development of pharmaceuticals, uncertainties related to the regulatory process and general changes to the economic environment. In particular, we may be impacted by business interruptions resulting from COVID-19 coronavirus, including operating, manufacturing supply chain, clinical trial and project development delays and disruptions, labour shortages, travel and shipping disruption, and shutdowns (including as a result of government regulation and prevention measures). It is unknown whether and how Oncolytics may be affected if the COVID-19 pandemic persists for an extended period of time. We may incur expenses or delays relating to such events outside of our control, which could have a material adverse impact on our business, operating results and financial condition. Investors should consult Oncolytics' quarterly and annual filings with the Canadian and U.S. securities commissions for additional information on risks and uncertainties relating to the forward-looking statements. Investors are cautioned against placing undue reliance on forward-looking statements. The Company does not undertake any obligation to update these forward-looking statements, except as required by applicable laws.

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