April 5, 2021

Oncolytics Biotech® to Host Key Opinion Leader Webinar to Discuss AWARE-1 Data, the Immunotherapeutic Effects of Pelareorep in Breast Cancer, and its Synergistic Activity with CAR T Cells in Solid Tumors

Webinar will take place Monday April 12, 2021 at 2:00 pm ET

SAN DIEGO and CALGARY, AB, April 5, 2021 /CNW/ -- Oncolytics Biotech® Inc. (NASDAQ: ONCY) (TSX: ONC) today announced that it will host a Key Opinion Leader (KOL) webinar discussing AWARE-1 data, the immunotherapeutic effects of pelareorep in breast cancer, and its synergistic activity with CAR T cells in solid tumors. The webinar will take place on Monday, April 12, 2021 at 2:00 pm ET.

The webinar will feature presentations by Key Opinion Leaders Aleix Prat, M.D., Ph.D. (Clínic Barcelona) and Richard Vile, Ph.D., (Mayo Clinic). Dr. Prat's portion of the presentation will focus on data from the AWARE-1 window-of-opportunity clinical trial evaluating pelareorep with and without atezolizumab (Tecentriq®) in early-stage breast cancer, which will be presented at this year's American Association for Cancer Research (AACR) Annual Meeting. Dr. Vile will then discuss the results of a preclinical study evaluating pelareorep and chimeric antigen receptor (CAR) T cell combination therapy in solid tumors (link to PR, link to poster).

During the event, Oncolytics' management team will also give a corporate update and discuss the company's upcoming milestones. Dr. Prat, Dr. Vile, and company management will be available to answer questions following the formal presentations.

To register for the event, please click here.

About the KOLs

Aleix Prat, M.D., Ph.D. is the Head of the Medical Oncology Department of the Hospital Clínic Barcelona (Spain), Associate Professor at the University of Barcelona, Head of the Translational Genomics and Targeted Therapeutics in Solid Tumors Lab at IDIBAPS, and President of the governing board of the Spanish Breast Cancer Cooperative Research Group (SOLTI), which performs clinical trials of excellence in oncology. He was also named a member of the Executive Board of The Breast International Group (BIG) in 2018. BIG is an international non-profit organization that is linked to more than 3,000 hospitals and includes

more than 10,000 experts and more than 56 cooperative groups from around the world.

Over his career, Dr. Prat obtained worldwide prestige as a research scientist in the field of breast cancer genomics and biomarker development. In 2008, he became a postdoctoral research associate (2008-2012) at the Lineberger Comprehensive Cancer Center (University of North Carolina at Chapel Hill, USA) in the Laboratory of Prof. Charles M. Perou, a world-renowned translational researcher in breast cancer. During this postdoctoral experience, he discovered and characterized a new molecular subtype of breast cancer, known as a Claudin-low (Prat et al. Breast Cancer Research 2010; Citations: 1,518). In addition, he contributed to the breast cancer portion of The Cancer Genome Atlas (Nature 2012; Citations: 4,661), which was a landmark molecular characterization study in the field of cancer research.

Richard Vile, Ph.D. is a world-renowned scientist and member of the Oncolytics Scientific Advisory Board with extensive experience studying pelareorep. As a recognized KOL, his research focuses on several areas of immuno-oncology, including oncolytic viruses, adoptive cell therapies (ACTs) such as chimeric antigen receptor (CAR) T cells, and potential synergistic interactions between oncolytic viruses and ACTs. In addition to his role as a professor at the Mayo Clinic ("Mayo"), Dr. Vile is the Director of Mayo's Immuno-oncology and Gene and Virus Therapy programs and Co-Director of the Cancer Immunology and Immunotherapy program. He also serves on the editorial board of several prestigious scientific journals, including Molecular Therapy, Gene Therapy, The Journal of Gene Medicine, and OncoImmunology. Dr. Vile received his B.A. in Biochemistry from the University of Oxford and his Ph.D. in Viral Vectors from the University of London.

About AWARE-1
AWARE-1 is an open label window-of-opportunity study in early-stage breast cancer enrolling 38 patients into five cohorts:

- Cohort 1 (n=10), HR+ / HER2- (pelareorep + letrozole)
- Cohort 2 (n=10), HR+ / HER2- (pelareorep + letrozole + atezolizumab)
- Cohort 3 (n=6), TNBC (pelareorep + atezolizumab)
- Cohort 4 (n=6), HR+ / HER2+ (pelareorep + trastuzumab + atezolizumab)
- Cohort 5 (n=6), HR- / HER2+ (pelareorep + trastuzumab + atezolizumab)

The study combines pelareorep, without or with atezolizumab, and the standard of care therapy according to breast cancer subtype. Tumor tissue is collected from patients as part of their initial breast cancer diagnosis, again on day three following initial treatment, and finally at three weeks following treatment, on the day of their mastectomy. Data generated from this study are intended to confirm that pelareorep is acting as a novel immunotherapy, to evaluate potential synergy between pelareorep and checkpoint blockade, and to provide comprehensive biomarker data by breast cancer subtype. The primary endpoint of the study is overall CelTIL score (a measurement of cellularity and tumor-infiltrating lymphocytes). Secondary endpoints for the study include CelTIL by breast cancer subtype, safety, and tumor and blood-based biomarkers.

For more information about the AWARE-1 study, refer to https://clinicaltrials.gov/ct2/show/NCT04102618.

About Pelareorep

Pelareorep is a non-pathogenic, proprietary isolate of the unmodified reovirus: a first-in-class intravenously delivered immuno-oncolytic virus for the treatment of solid tumors and hematological malignancies. The compound induces selective tumor lysis and promotes an inflamed tumor phenotype through innate and adaptive immune responses to treat a variety of cancers and has been demonstrated to be able to escape neutralizing antibodies found in patients.

About Oncolytics Biotech Inc.

Oncolytics is a biotechnology company developing pelareorep, an intravenously delivered immuno-oncolytic virus. The compound induces selective tumor lysis 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 immuno-oncology agents. Oncolytics is currently conducting and planning additional studies of pelareorep in combination with checkpoint inhibitors and targeted therapies in solid and hematological malignancies, as it prepares for a phase 3 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; 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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