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Oncolytics Biotech(R) Announces First Patient Treated in Company's AWARE-1 Window of Opportunity Study of Pelareorep in Breast Cancer

- Study to generate comprehensive biomarker data by breast cancer sub-type

to support phase 3 registration program

- Interim data expected in the second half of 2019

CALGARY, AB and SAN DIEGO, CA / ACCESSWIRE / April 8, 2019 /Oncolytics Biotech® Inc. (NASDAQ: ONCY) (TSX: ONC), currently developing pelareorep, an intravenously delivered immuno-oncolytic virus, today announced that the first patient has been treated in the AWARE-1 window of opportunity (WOO) study that is being conducted in collaboration with SOLTI, an academic research group dedicated to clinical and translational research in breast cancer. Patients will receive the appropriate intervention for their breast cancer sub-type, plus pelareorep, with or without Tecentriq® (atezolizumab), followed by surgery.

"We are pleased to have treated the first patient in our window of opportunity study that will yield important results confirming both our recently identified biomarker and pelareorep's ability to prime an antitumor immune response," said Matt Coffey, President and Chief Executive Officer of Oncolytics Biotech. "This short study could significantly de-risk our late-stage metastatic breast cancer program, resulting in a smaller, less expensive study with a higher likelihood of success. Beyond the biomarker data, the study will also inform whether we should add a checkpoint inhibitor arm to the phase three registration study. We look forward to initial data from this study in this highly-prevalent cancer indication later this year."

This study, which is being sponsored by Oncolytics and facilitated by SOLTI, is a WOO study in the early treatment setting for breast cancer. Patients will receive the appropriate intervention for their breast cancer sub-type plus pelareorep, with or without Tecentriq. Patients are biopsied on day one, followed immediately by treatment and a final biopsy after three weeks, on the day of their mastectomy. The study is being coordinated by Dr. Aleix Prat, Head of Medical Oncology at the Hospital Clínic of Barcelona, Associate Professor of the University of Barcelona and the Head of the Translational Genomics and Targeted Therapeutics in Solid Tumors Group at August Pi i Sunyer Biomedical Research Institute (IDIBAPS) and member of Oncolytics' Scientific Advisory Board.

Pelareorep received FDA Fast Track Designation for the treatment of metastatic breast cancer in May 2017.

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 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, including the Company's belief as to the potential and mode of action of REOLYSIN, also known as pelareorep, as a cancer therapeutic; and other statements related to anticipated

developments in the Company's business and technologies involve known and unknown risks and uncertainties, which could cause the Company's 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, the Company's 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. Investors should consult the Company's 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 to update these forward-looking statements, except as required by applicable laws.

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