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Oncolytics Biotech® Inc.'s REOLYSIN® More than Doubles Overall Survival in Patients with Mutated p53 Metastatic Breast Cancer

- Patients with mutated p53 metastatic breast cancer saw a statistically significant improvement in median overall survival from 10.4 months in the control arm to 20.9 months in the test arm; and
- A registration study in metastatic breast cancer, with a focus on p53 mutations, is being designed with overall survival as the primary endpoint.

CALGARY, April 5, 2017 /PRNewswire/ - Oncolytics Biotech® Inc. (Oncolytics or the Company) (TSX:ONC) (OTCQX:ONCYF) today announced data demonstrating a statistically significant ($p=0.03$) overall survival (OS) benefit for patients with mutated p53 metastatic breast cancer, when treated with REOLYSIN®, an immuno-oncology viral agent, in combination with paclitaxel. Results from IND 213, an open-label, randomized, phase 2 study were presented at the Annual Meeting of the American Association of Cancer Research (AACR), April 1-5, 2017 in Washington, D.C.

"Mutations of the p53 tumor suppressor gene play an increasingly challenging role throughout the life cycle of cancer," said Dr. Matt Coffey, President & Chief Executive Officer of Oncolytics. "As breast cancer progresses clinically, p53 mutations become more prominent and negatively impact therapeutic efficacy and overall survival. These data provide evidence that combining REOLYSIN with paclitaxel may improve survival for this difficult-to-treat, well characterized, patient population."

The open-label, randomized, phase 2 study enrolled 74 patients with metastatic breast cancer, 82 percent (61 patients) of whom presented with p53 mutated tumors. The results show patients with mutated p53 metastatic breast cancer that were treated with REOLYSIN in combination with paclitaxel ($n=30$) had a median OS of 20.9 months versus 10.4 months ($n=31$) in patients treated only with paclitaxel. The study was designed and conducted by the Canadian Cancer Trials Group (CCTG, formerly known as the National Cancer Institute of Canada - NCIC).

"The observed survival benefit is very exciting and reinforces the effectiveness and tolerability of REOLYSIN in patients with mutated p53 metastatic breast cancer, while demonstrating its potential utility in earlier lines of treatment for this difficult-to-treat, high-risk group of patients," said Dr. Andres Gutierrez, Chief Medical Officer of Oncolytics. "These data indicate overall survival is more than doubled for patients when treatment with REOLYSIN is added to the standard of care and highlight key considerations for the design and execution of a registration study in breast cancer. Our immediate next steps include

seeking advice from key opinion leaders and regulators on refining our go-forward regulatory strategy and registration pathway."

In the abstract for the poster, the CCTG had previously reported that in the intention-to-treat patient population there was an improvement in median OS (secondary endpoint) from 10.4 months on the control arm to 17.4 months on the test arm (Hazard ratio 0.65, 80% CI 0.46-0.91, p=0.1) meeting the pre-specified significance threshold with powering of 90 percent. Consistent with REOLYSIN acting as an immune therapy agent, there was no meaningful improvement in either progression free survival (the primary endpoint), or response rate (secondary endpoint). With this overall survival data and the additional data from the p53 patient group, the company has commenced the planning of a registration study in metastatic breast cancer with overall survival as the primary endpoint.

The poster, authored by Bernstein *et al*, "A Randomized (RCT) Phase II Study of Oncolytic Reovirus (Pelareorep) plus Standard Weekly Paclitaxel (P) as Therapy for Metastatic Breast Cancer (mBC)" will be available on the Oncolytics website at: <http://www.oncolyticsbiotech.com/for-investors/presentations>.

About Breast Cancer

The National Cancer institute reported 246,660 new cases of breast cancer diagnosed in the United States and 40,450 deaths from the disease in 2016.

About Oncolytics Biotech Inc.

Oncolytics is a biotechnology company developing REOLYSIN[®], an immuno-oncology viral-agent, as a potential treatment for a variety of tumor types. The compound induces selective tumor lysis and promotes an inflamed tumor phenotype through innate and adaptive immune responses to treat a variety of cancers. Oncolytics' clinical development program emphasizes three pillars: chemotherapy combinations to trigger selective tumor lysis; immuno-therapy combinations to produce adaptive immune responses; and immune modulator (IMiD) combinations to facilitate innate immune responses. Oncolytics is currently planning its first registration study in breast cancer, as well as studies in combination with checkpoint inhibitors and IMiD/targeted therapies in solid and hematological malignancies. For further information about Oncolytics, please visit: www.oncolyticsbiotech.com.

This press release contains forward-looking statements, within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Forward-looking statements, including the Company's expectations related to the Phase 2 clinical trial in breast cancer, future trials in this indication, and the Company's belief as to the potential of REOLYSIN as a cancer therapeutic, 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 REOLYSIN as a cancer treatment, the tolerability of REOLYSIN outside a controlled test, the success and timely completion of clinical studies and trials, the Company's ability to successfully commercialize REOLYSIN, uncertainties related to the research, development and manufacturing of pharmaceuticals, changes in technology, general changes to the economic environment and uncertainties related to the regulatory process. 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 should consider statements that include the words "believes", "expects", "anticipates", "intends", "estimates", "plans", "projects", "should", or other expressions that are predictions of or indicate future events or trends, to be uncertain and forward-looking. 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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