February 27, 2019

Oncolytics Biotech(R) Presents Biomarker Data in Second-line Pancreatic Cancer at AACR

Data identifies a simple blood test that predicts clinical response to pelareorep

CALGARY, AB and SAN DIEGO, CA / ACCESSWIRE / February 27, 2019 /Oncolytics Biotech® Inc. (NASDAQ: ONCY) (TSX: ONC), currently developing pelareorep, an intravenously delivered immuno-oncolytic virus, today announced the publication of an abstract demonstrating a biomarker for predicting clinical response in patients treated with pelareorep. This analysis was conducted in patient samples from REO 024; a study of pelareorep and Keytruda® in combination with chemotherapy in patients with second-line pancreatic cancer. Detailed results will be presented at the American Association for Cancer Research (AACR) Annual Meeting taking place March 30 through April 3 in Atlanta, Georgia.

"With a simple blood draw, this biomarker data allows physicians to understand which patients are likely to respond to treatment, allowing for the design of clinical studies that are cheaper, faster and more likely to succeed," said Dr. Matt Coffey, President and CEO of Oncolytics Biotech. "Our biomarker data that we will present at AACR is immediately applicable to future clinical studies. Investigators should now be able to predict which patients will respond to pelareorep in combination with a checkpoint inhibitor. This biomarker will be evaluated in our clinical studies with checkpoint inhibitors, including both of our multiple myeloma studies, the AWARE-1 breast cancer study, and importantly, in the same setting this data was produced, our phase two second-line pancreatic study in combination with Keytruda."

"Using patient blood samples from our REO 024 study in second line pancreatic cancer, T cell receptor sequencing was performed with Adaptive Biotechnologies' immunoSEQ Assay to measure the diversity or clonality of the T cell population," said Dr. Rita Laeufle, CMO of Oncolytics Biotech. "Results from this analysis demonstrate that higher clonality after one three-week cycle of treatment can identify patients likely to respond to combination treatment of pelareorep and a checkpoint inhibitor."

The results suggest that those patients with a statistically significant change in their T cell population demonstrate a clinical benefit from pelareorep treatment. High T cell clonality correlates with progression free survival at baseline (HR=0.05, p=0.01). Moreover, high clonality correlates with overall survival at both baseline (HR=0.124, p=0.01) and after one cycle of treatment (HR=0.08, p=0.01). This research highlights the potential utility of measuring T cell clonality as a predictive and prognostic biomarker of pelareorep therapy.

The abstract, authored by Dr. Grey Wilkinson, a translational scientist at Oncolytics Biotech, and his colleagues, in collaboration with Northwestern University, UT Health San Antonio and Adaptive Biotechnologies, can be found online at https://www.abstractsonline.com/pp8/#!/6812/presentation/4866. Full details from the poster presentation will be announced after it is presented.

Poster Board Number: 1
Presentation Number: 2272
Title: Exploratory analysis of T cell repertoire dynamics upon systemic treatment with the oncolytic virus pelareorep in combination with pembrolizumab and chemotherapy in patients with advanced pancreatic adenocarcinoma
Date: Monday, April 1
Lecture Time: 1:00 p.m. ET - 5:00 p.m. ET
Location: Georgia World Congress Center, Exhibit Hall B, Poster Section 20
Speakers: Grey Wilkinson
Session Category: Clinical Research
Session: Current Developments in Non-invasive Biomarkers for Assessment of Cancer 3

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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