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Oncolytics Biotech® Presents Preclinical Data on Pelareorep-based Combination Therapies at the AACR Annual Meeting

- Pelareorep enhances anti-tumor efficacy of PARP-1 and CDK 4/6 inhibitors in preclinical models through a novel immunological mechanism not typically associated with PARP-1 and CDK 4/6 inhibitors**
- Pelareorep synergizes with a broad array of anti-cancer agents**

SAN DIEGO and CALGARY, AB, April 12, 2021 /CNW/ -- Oncolytics Biotech® Inc. (NASDAQ: ONCY) (TSX: ONC) recently announced preclinical data highlighting pelareorep's ability to synergize with multiple classes of anti-cancer agents. The data are featured in two electronic poster presentations at the American Association for Cancer Research (AACR) Annual Meeting 2021.



Experiments presented in the posters evaluate the mechanisms of therapeutic synergy between pelareorep and anti-cancer agents identified via a non-biased high throughput screening assay. The top results identified in the screen were the poly(ADP)-ribose polymerase 1 (PARP-1) inhibitor talazoparib and the Cyclin-dependent kinase (CDK) 4/6 inhibitor palbociclib, which are both FDA approved for the treatment of breast cancer.

"Preclinical data presented at AACR compel the use of pelareorep to broaden the therapeutic applicability of approved anti-cancer agents," said Thomas Heineman, M.D., Ph.D., Global Head of Clinical Development and Operations at Oncolytics. "Notably, the synergistic interactions between pelareorep and both talazoparib and palbociclib were mediated through immunological effects rather than through the molecular pathways typically associated with PARP-1 and CDK 4/6 inhibition. These findings suggest that pelareorep may expand the mechanisms by which PARP-1 and CDK 4/6 inhibitors exert anti-tumor effects, which may enhance their therapeutic potential."

Key findings from the first poster titled, "*Talazoparib interacts with oncolytic reovirus to enhance death-inducing signaling complex (DISC)-mediated apoptosis and immune response*" include:

- Pelareorep and talazoparib synergistically increase cancer cell apoptosis *in vitro* and *in vivo*
- Pelareorep and talazoparib mechanistically synergize through enhancement of IFN- β signaling pathways
- Combining pelareorep with talazoparib led to enhanced anti-tumor efficacy and inhibition of recurrent tumor growth in murine tumor models
- The synergistic anti-cancer effects of pelareorep-talazoparib therapy correlated with an increased immune response
- Key findings from the second poster titled, "*Mechanisms of therapeutic synergy between pattern recognition response agonists and cdk4 inhibitors*" include:
 - Combining pelareorep with palbociclib increased cancer cell death *in vitro* and reduced *in vivo* tumor burden compared to pelareorep or palbociclib monotherapy
 - Pelareorep and palbociclib mechanistically synergize through enhancement of endoplasmic reticulum (ER) stress signaling
 - Pelareorep-palbociclib enhanced ER stress signaling promoted cancer cell apoptosis by increasing innate immune activation and effector function

Andrew de Guttadauro, President of Oncolytics Biotech U.S. and Global Head of Business Development, commented, "Our most recent clinical and preclinical findings support pelareorep's potential to boost the effectiveness of various immunotherapies beyond merely checkpoint inhibitors. Moreover, these findings codify pelareorep's position as a simple and effective enabling technology to enhance the clinical effectiveness of a wide range of immunotherapeutic agents."

The electronic posters are available for on-demand viewing on the AACR Annual Meeting 2021 e-poster website and on the *Posters & Publications* page of Oncolytics' website ([LINK](#)).

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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