Oncolytics Biotech Inc.

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Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

Form 20-F ☒ Form 40-F  

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): ☐

Note: Regulation S-T Rule 101(b)(1) only permits the submission in paper of a Form 6-K if submitted solely to provide an attached annual report to security holders.

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): ☐

Note: Regulation S-T Rule 101(b)(7) only permits the submission in paper of a Form 6-K if submitted to furnish a report or other document that the registrant foreign private issuer must furnish and make public under the laws of the jurisdiction in which the registrant is incorporated, domiciled or legally organized (the registrant's “home country”), or under the rules of the home country exchange on which the registrant's securities are traded, as long as the report or other document is not a press release, is not required to be and has not been distributed to the registrant's security holders, and, if discussing a material event, has already been the subject of a Form 6-K submission or other Commission filing on EDGAR.

Indicate by check mark whether by furnishing the information contained in this Form, the registrant is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes ☐ No ☒

If “Yes” is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): 82 - _______
SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Oncolytics Biotech Inc.
(Registrant)

By:  /s/ Kirk Look
    Kirk Look
    Chief Financial Officer

Date: April 18, 2018
Oncolytics Biotech® Demonstrates Positive Data in Two Posters at AACR Annual Meeting 2018

- Preclinical models proved pelareorep increased PD-L1 expression in microsatellite stable (MSS) colorectal cancer cells (CRC) –

- Demonstrated efficacy of pelareorep and anti-PD1 agent combination -

CALGARY, AB and SAN DIEGO, CA, April 18, 2018 -- Oncolytics Biotech® Inc. (TSX: ONC) (OTCQX: ONCYF), currently developing REOLYSIN® (pelareorep), an intravenously delivered immuno-oncolytic virus turning cold tumors hot, today announced two posters highlighting data from pelareorep studies presented at the American Association for Cancer Research (AACR) Annual Meeting 2018. The conference takes place April 14-18, 2018, in Chicago.

"These posters add additional confirmation of pelareorep’s promotion of an inflammatory signature in different cell lines,” said Dr. Matt Coffey, President and CEO of Oncolytics Biotech. “The study by doctor Wilkinson demonstrates that pelareorep can establish an inflamed tumor phenotype and the presentation by doctor Goel highlights the synergistic combination of pelareorep and an anti-PD1 agent. Taken together, these findings highlight that pelareorep is priming the immune system and enhancing the activity of checkpoint blockade. As MSS CRC typically does not respond to checkpoint blockade, viral priming could expand the use of this drug class by making non-susceptible tissue susceptible by turning cold tumors hot. This work will of course lead to additional studies in combination with other immunotherapies.”

**Presenter:** Sanjay Goel, MD, Associate Professor of Medicine, Montefiore Medical Center
**Presentation Title:** Potentiating effect of reovirus in anti-PD1 therapy in colorectal cancer
**Session Title:** Receptor Targeting and the Tumor Microenvironment
**Location:** Poster Section 38
**Poster Board #:** 17
**Poster Number:** 3917

Data presented in the poster demonstrated:
- pelareorep administration increased PD-L1 expression on MSS CRC cells;
- possible evidence of a vaccine effect: immunologically competent mice were re-challenged with the original tumor and the tumor was unable to propagate;
- combination therapy made statistically significant improvements in survival compared to controls in both BALB/c (median 42 vs. 16 days, \( p=0.003 \)) and C57BL/6 (median 24 vs. 17 days, \( p=0.02 \)) mice; and
- pelareorep treated xenografted tumor tissue showed a higher infiltration of T lymphocytes as confirmed by CD8-positive and intensified granzyme staining.

**Presenter:** Grey Wilkinson, PhD, Translational Scientist, Oncolytics Biotech
**Presentation Title:** Pelareorep promotes the expression of a chemokine signature that predicts response to immunotherapy
**Session Title:** Immunomodulatory Agents and Interventions 2
**Location:** Poster Section 33
**Poster Board #:** 10
**Poster Number:** 4707
Data presented in the poster demonstrated:

- the expression of a chemokine signature that predicts response to immunotherapy;
- global changes in gene expression are unique and different for each cell line following pelareorep infection and changes in gene expression occur before significant cell lysis;
- pelareorep differentially promotes the expression of innate and adaptive immunity related genes in HCC, CRC, NSCLC cell lines; and
- pelareorep promotes the expression of gene signatures that predict response to immuno-therapies in HCC cells.

These posters are now available on the Posters & Publications page of the company's website: www.oncolyticsbiotech.com/technology/posters-publications.

**About REOLYSIN/Pelareorep**

REOLYSIN, also known as 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.

**About Oncolytics Biotech Inc.**

Oncolytics is a biotechnology company developing REOLYSIN®, also known as 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. Oncolytics' clinical development program emphasizes three pillars: chemotherapy combinations to trigger selective tumor lysis and immuno-therapy and immune modulator (IMiD) combinations to produce innate and adaptive immune responses. Oncolytics is currently planning its first registration study in metastatic breast cancer, as well as studies in combination with checkpoint inhibitors and targeted and IMiD therapies in solid and hematological malignancies. 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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