**Oncolytics Message to Shareholders – Q2 2017**

We entered the second quarter of 2017 reporting the most compelling data REOLYSIN® has generated to-date: statistically significant overall survival (OS) data in metastatic breast cancer (mBC) patients. Median OS for patients who received REOLYSIN increased from 10.4 months to 17.4 months compared to patients who did not receive REOLYSIN. We closed an $11.5 million public offering extending our cash runway to the end of 2018. We exited the quarter with a defined clinical development plan, a registration pathway in mBC and Fast Track designation from the United States Food and Drug Administration (FDA). We enter into the third quarter preparing for our End-of-Phase 2 Meeting with the FDA in August.

**Clinical data establishes registration pathway**

At the end of the first quarter of 2017, we announced significantly improved median overall survival (OS) in a phase 2 trial of advanced or metastatic breast cancer (mBC) patients treated with REOLYSIN – results never before achieved in a randomized trial of any other agent in its class. Shortly after this we announced our clinical development plan focused on combining REOLYSIN with a chemotherapy backbone – initially in mBC – as well as in combination with immuno-oncology drugs (IOs) and immunomodulatory drugs (IMiDs). Our focus on mBC in combination with paclitaxel now sets the stage for REOLYSIN to achieve our primary objective of obtaining regulatory approval as quickly as possible in an underserved market with significant commercial potential.

**Evolving understanding of mechanism of action establishes clinical development plan**

REOLYSIN is now recognized as a first-in-class immune-oncology viral agent. Our understanding of REOLYSIN's mechanism of action has evolved during the last few years based on multiple randomized phase 2 clinical studies. REOLYSIN's therapeutic profile is consistent with that of approved IOs, where treatment results in an OS benefit, but not progression free survival. This suggests that, in addition to directly lysing, or killing cancer cells, REOLYSIN activates both an innate and adaptive immune response, turning "cold" tumors "hot". The concept of "hot" and "cold" tumors is interesting, as a "cold" tumor is an immunologically barren tumor lacking T-cells and other immune cells. In contrast, a "hot" tumor is heavily invaded by immune cells. Because IOs leverage the immune system, they don't work well in a in cold tumor environment. Therefore, by turning cold tumors hot, REOLYSIN could potentially increase the effectiveness of this entire class of cancer therapeutics.

Based on our evolved understanding of the mechanism of action we identified two additional development pathways to be advanced concurrently with our mBC registration study. The phase 1b MUK *eleven* trial, launched in March 2017, will support the innate immunity component of our clinical development plan by studying REOLYSIN in combination with immunomodulators, Revlimid® and/or Imnovid®, in relapsing myeloma patients. In this case the innate immune response of an increase of Natural Killer (NK) cells could potentially assist the therapeutic effect of these IMiDs. In May 2017, we announced preliminary data for the REO 024 phase 1b trial, which supports the adaptive immunity component of Oncolytics' clinical development plan. The trial assessed the safety of REOLYSIN combined with pembrolizumab (Keytruda®), a PD-1 checkpoint inhibitor, in previously treated pancreatic cancer patients. The preliminary results demonstrated that the combination therapy has manageable safety

profiles and anti-tumor activity. These results represent an opportunity to study other checkpoint inhibitor combinations, consistent with the secondary objective of our clinical development plan: to expand clinical collaborations with large pharma to explore new, commercially valuable treatment areas for REOLYSIN.

**Fast Track designation for metastatic breast cancer**

Perhaps our most significant achievement this quarter was the granting of Fast Track designation by the United States Food and Drug Administration (FDA) of REOLYSIN for the treatment of mBC. The Fast Track designation supports more frequent dialogue with the FDA on our drug development plan, data requirements and clinical trial design. It also, in certain situations, enables the FDA to take action on a new drug or biologics license application more rapidly than under the standard review process. We intend to leverage this designation to achieve our primary objective of promptly obtaining regulatory approval.

**Completion of an $11.5 million offering**

In order to fund our clinical development plan, Oncolytics completed a public offering of units on June 1, 2017, which generated total net proceeds of approximately $10.4 million. The funds raised will enable us to effectively plan and prepare for a phase 3 registration study, prepare a regulatory approval strategy for REOLYSIN, as well as support expanded business development and partnering activities.

**Looking Ahead**

We are diligently preparing for our End-of-Phase 2 meeting with the FDA scheduled in August. The objective of the meeting is to obtain scientific guidance on the registration pathway for REOLYSIN in mBC and we expect to announce the outcome of this meeting in the fourth quarter of 2017. We also expect to announce the enrollment of the first patient in the MUK *eleven* study before the end of the third quarter and a final analysis of REO 024 – studying REOLYSIN in combination with pembrolizumab (Merck's immune checkpoint inhibitor – KEYTRUDA®) and chemotherapy in advanced or metastatic pancreatic adenocarcinoma – is expected by the end of 2017. In parallel, we continue to pursue collaborations to study REOLYSIN/checkpoint inhibitor combinations and our goal of securing a large partnership for the phase 3 mBC study to being next year.

I am proud of the progress we have made in the last six months, and excited as we work toward becoming a late stage, phase 3 biotechnology company. I look forward to updating our stakeholders next quarter as we advance toward this goal.

/s/ Dr. Matt Coffey
President and CEO