September 14, 2017

Oncolytics Biotech® Announces First Patient Treated in MUK eleven Study

CALGARY and SAN DIEGO, Sept. 14, 2017 /PRNewswire/ - Oncolytics Biotech® Inc. (TSX: ONC) (OTCQX: ONCYF) (Oncolytics or the Company), a biotech company developing REOLYSIN® (pelareorep), a first-in-class, systemically delivered immuno-oncolytic virus that activates the innate and adaptive immune systems, today announced that the first patient has been treated in the Phase 1b trial MUK eleven, studying REOLYSIN in combination with Celgene Corporation's immunomodulatory drugs (IMiDs), Revlimid® or Imnovid® as a rescue treatment in relapsing myeloma patients.

"This is an important trial for Oncolytics as it's the first to discretely examine the innate immunity component of REOLYSIN's mechanism of action," said Dr. Matt Coffey, President and CEO of Oncolytics Biotech. "MUK *eleven* and REO 024, our trial evaluating the induction of an inflamed tumor phenotype of REOLYSIN in a combination with Keytruda, collectively demonstrate our strategy to assess the safety and efficacy of REOLYSIN in combination with immunomodulatory and immuno-oncology drugs, the impact of these combinations on the immune system and to explore new clinical applications."

"We are pleased to have enrolled the first patient in MUK*eleven*, a trial focused on a novel area of myeloma research," said Dr. Simon Ridley, Director of Research at Myeloma UK. "Our Clinical Trial Network is focused on strategic, collaborative and innovative approaches to delivering trials and treatments to patients and this pioneering trial has the potential to offer a novel future treatment strategy in myeloma."

MUK *eleven* is a first-of-its-kind immunotherapy trial that aims to modulate the immune system to target myeloma. The trial, run through the Myeloma UK Clinical Trial Network (CTN) in collaboration with charity Myeloma UK, the University of Leeds and Celgene, launched in March of this year and will recruit approximately 44 patients across up to eight CTN centres in the UK. MUK *eleven* will study REOLYSIN (pelareorep) in combination with Celgene's Imnovid® (pomalidomide) or Revlimid® (lenalidomide) in patients whose myeloma is progressing while being treated with one of these IMiDs. In addition to assessing the safety and tolerability of these combinations, the trial will investigate whether the addition of REOLYSIN extends disease control in this patient group.

MUK *eleven* is a dose escalation trial where dose limiting toxicities (DLTs) will inform decisions to increase dose, and patients being treated with pomalidomide will be evaluated separately from those taking lenalidomide. Beginning at two CTN centres, cohorts of two participants each will be treated with REOLYSIN in combination with an IMiD. The first patient will receive one 28-day treatment cycle and if no DLTs are experienced at the end of the cycle, the second patient will begin treatment at the same dose. Doses may be escalated once participants in each cohort have completed the DLT monitoring period and will be increased between cohorts until the occurrence of DLTs define the maximum

tolerated dose (MTD). Once the MTD has been identified with no associated safety issues, 10 additional patients will be enrolled at the MTD. Once a minimum of 12 patients in each IMiD group have been treated, up to six additional trial sites may be added to the trial. Based on this trial design, preliminary data are expected to be available in the first quarter of 2018.

About REOLYSIN
REOLYSIN® is a non-pathogenic, proprietary isolate of the unmodified reovirus. A first-in-class systemically 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, a systemically delivered immuno-oncolytic virus. 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 metastatic breast cancer, as well as studies in combination with checkpoint inhibitors as well as targeted and IMiD therapies in solid and hematological malignancies. For further information about Oncolytics, please visit: www.oncolyticsbiotech.com.

University of Leeds
The University of Leeds is one of the largest higher education institutions in the UK, with more than 33,000 students from 147 different countries, and a member of the Russell Group of research-intensive universities. We are a top 10 university for research and impact power in the UK, according to the 2014 Research Excellence Framework and we are The Times and The Sunday Times University of the Year 2017. Additionally, the University has been awarded a gold rating by the Government's Teaching Excellence Framework recognising its 'consistently outstanding' teaching and learning provision. www.leeds.ac.uk

About Myeloma UK
Myeloma UK is the only organisation in the UK dealing exclusively with myeloma - our ultimate goal is to find a cure. We are dedicated to ensuring that patients get access to the right treatment at the right time, and to improving standards of treatment and care through research, education and awareness raising. Our organisation also provides a range of information and support services to patients, family and friends to help deal with a diagnosis of myeloma. Myeloma UK receives no Government funding and relies almost entirely on voluntary donations and fundraising. For more information visit: www.myeloma.org.uk.

This press release contains forward-looking statements, within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended. Forward-looking statements, including the Company's belief as to the potential of REOLYSIN® as a cancer therapeutic; the Company's expectations as to the success of its research and development programs in 2017 and beyond, the Company's planned operations, the value of the additional patents and intellectual property; the Company's expectations related to the applications of the

patented technology; the Company's expectations as to adequacy of its existing capital resources; the design, timing, success of planned clinical trial programs; 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 REOLYSIN as a cancer treatment, the success and timely completion of clinical studies and trials, the Company's ability to successfully commercialize REOLYSIN, 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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