

## **Supplemental Information**

### **Assessing the Completeness of Reporting in Preclinical Oncolytic Virus Therapy Studies**

**Dean A. Fergusson, Neil L. Wesch, Garvin J. Leung, Jenna L. MacNeil, Isidora Conic, Justin Presseau, Kelly D. Cobey, Jean-Simon Diallo, Rebecca Auer, Jonathan Kimmelman, Natasha Kekre, Nader El-Sayes, Ramya Krishnan, Brian A. Keller, Carolina Ilkow, and Manoj M. Lalu**

## Supplementary Online Material

Table S1. Study design and publication characteristics.

Question	Response	Frequency
Indicate the corresponding author's country of residence.	United States	72
	China	63
	Canada	16
	Japan	15
	Finland	11
	South Korea	10
	United Kingdom	9
	Spain	8
	Germany	7
	France	6
	Russia	5
	Sweden	3
	Austria	2
	Denmark	2
	India	2
	Belgium	1
Ireland	1	
Netherlands	1	
Saudi Arabia	1	
Switzerland	1	
Indicate the year of publication.	2016	169
	2017	67
Indicate all contributing forms of research funding.	Government	196
	Academic	107
	Foundation / Charity	94
	Industry	39
	Other (individual donations)	12
	No mention of funding	5
Explicitly unfunded	2	
What is the journal of publication?	Oncotarget	29
	Molecular Therapy – Oncolytics	23
	Gene Therapy	12
	Molecular Therapy	10
	Cancer Gene Therapy	10
	Oncolmmunology	9
	Clinical Cancer Research	7
	Molecular Cancer Therapeutics	7
	PLoS One	6
	Human Gene Therapy	5
	Neuro-Oncology	5
Nature Communications	4	

	Cancer Research	4
	Vaccine	4
	Cancer Letters	4
	Journal of Controlled Release	3
	Scientific Reports	3
	International Journal of Oncology	3
	International Journal of Cancer	3
	Oncology Reports	3
	Journal of Virology	3
	Viruses	3
	Cancer Biology	2
	Acta Biomaterialia	2
	Virus Research	2
	Cancer Science	2
	Journal of Cancer	2
	ACS Nano	2
	Journal of Translational Medicine	2
	Blood	2
	Journal of Pharmacological Sciences	2
	Journal of General Virology	2
	Cancer Immunology Immunotherapy	2
	Apoptosis	2
	Virology	2
	Molecular Medicine Reports	1
	Molecular Medicine	1
	Medical Oncology	1
	Journal of Cellular and Molecular Medicine	1
	Journal of Gene Medicine	1
	Journal of the National Cancer Institute	1
	Cancer Immunology Research	1
	Therapeutics and Clinical Risk Management	1
	Surgery	1
	The Journal of Immunology	1
	The Journal of Nuclear Medicine	1
	Virus Genes	1
	Veterinary and Comparative Oncology	1
	Applied Materials	1
	Molecular Oncology	1
	Drug Design, Development and Therapy	1
	OncoTargets and Therapy	1
	Molecular Therapy — Methods	1

	Acta Pharmacologica Sinica	1
	Translational Oncology	1
	Breast Cancer Research	1
	American Journal of Cancer Research	1
	Stem Cell Reports	1
	Oncolytic Virotherapy	1
	Cellular Immunology	1
	Frontiers in Oncology	1
	BMC Cancer	1
	Reproductive Sciences	1
	Oncogene	1
	Biochemical and Biophysical Research Communications	1
	International Immunopharmacology	1
	Journal of Ovarian Research	1
	International Journal of Molecular Sciences	1
	Journal of Immunology Research	1
	Oral Oncology	1
	Tumor Biology	1
	Cellular Oncology	1
	Cell Reports	1
	EBioMedicine	1
	Journal of Experimental & Clinical Cancer Research	1
	The Canadian Journal of Veterinary Research	1
	Neurotherapeutics	1
	Head	1
	Molecular Genetics, Microbiology and Virology	1
	Current Gene Therapy	1
	Gut	1
	Russian Journal of Genetics: Applied Research	1
	International Journal of Clinical and Experimental Medicine	1
	Human Gene Therapy Clinical Development	1
	Journal of Biomedical Science	1
Which of the following outcomes were investigated?	Cancer size/burden	204
	Survival	116
	Viral Infectivity	109
	Anti-tumor response	94
	Cytokine response	55
	Tumor specificity/biodistribution	52
From the title alone, could you tell this was a preclinical article?	Yes	76
	No	160

**Table S2. Epidemiology of viral, cancer, and animal models.**

Question	Response	Frequency
What is the viral platform?	Adenovirus	104
	Vaccinia virus	34
	Herpes simplex virus	27
	Vesicular stomatitis virus	15
	Measles virus	11
	Newcastle disease virus	9
	Reovirus	8
	Myxoma virus	4
	Alphavirus	3
	Cytomegalovirus	3
	Maraba virus	3
	Parvovirus	3
	Lentivirus	2
	Picornavirus	2
	Tanapoxvirus	2
	Canine distemper virus	1
	Chicken infectious anemia virus	1
	Foot-and-mouth disease virus	1
	Human papilloma virus	1
	Influenza virus	1
Lymphocytic choriomeningitis virus	1	
Mengovirus	1	
Mumps virus	1	
Poliovirus	1	
Semliki forest virus	1	
Tobacco mosaic virus	1	
Is the virus replicating?	Yes	182
	No	31
	Unsure	26
What is the type of viral therapy?	Monotherapy	152
	Monotherapy + combination therapy	74
	Combination therapy	10
What is the route of viral administration?	Intratumoural	176
	Not intratumoural	77
	Unsure	7

Question	Response	Frequency	
What type of cancer was induced?	Colorectal	42	
	Skin	35	
	Breast	33	
	Liver	28	
	Brain	25	
	Lung	25	
	Ovary	16	
	Blood	15	
	Pancreas	15	
	Muscle	10	
	Prostate	10	
	Bladder	7	
	Bone marrow	5	
	Gastric	5	
	Kidney	5	
	Head and neck	4	
	Bone	3	
	Cervical	3	
	Esophagus	2	
Mesothelium	2		
Nervous system	1		
Teratoma	1		
Thyroid	1		
What was the method of cancer/tumor induction?	Implantation	235	
	Transgenic	3	
	Chemical	0	
Indicate the type of implant.	Xenograft	153	
	Syngeneic	99	
What is the site of the tumor?	Heterotopic	170	
	Orthotopic	83	
	Unsure	6	
Question	Response	Frequency	
What was the type of animal(s) used?	Mouse	231	25516
	Rat	5	516
	Hamster	4	NA
	Non-human primate	1	12

	Immunodeficient	134
What type of animal model was used?	Humanized	3
	Partially immunocompromised	16
	Unsure	5
Was ethics approval for animal use explicitly reported?	Yes	172
	No	64
Was the housing and handling of animals reported?	Yes	104
	No	132

**Table S3. Reporting assessment results.** The frequency of reporting of all 21 items deconstructed and operationalized from the National Institutes of Health preclinical reporting guidelines across the all included studies. These recommendations are separated into seven distinct domains.

Domain	Item Description	N=236 n (%) reported
Standards	Community based reporting guidelines listed	1 (0.4)
Replicates (biological vs. technical)	Results substantiated by repetition under a range of conditions	225 (95)
	Number of subjects stated for all experimental outcomes	25 (17)
	Number of measurements per subject for one experimental outcome stated	105 (44)
	Number of measurements per subject for all experimental outcomes stated	2 (1)
Statistics	List of the total number of subjects used in each experimental group	148 (63)
	List of all statistical tests used	225 (95)
	Definition of the measure of central tendency	203 (86)
	Definition of the measure of dispersion and precision	206 (87)
Randomization	Random group assignment reported	103 (44)
	Description of the method of random group assignment	2 (1)
Blinding	Experimenters blinded to group allocation during conduct of the experiment	7 (3)
	Experimenters blinded to group allocation during result assessment	15 (6)
Sample Size Estimation	Description of an <i>a priori</i> primary outcome	12 (5)
	Sample size computed during study design	10 (4)
	Description of the method of sample size determination	4 (2)
Inclusion and Exclusion Criteria	Total number of animals procured for the experiment reported	7 (3)
	Description of the criteria used for the exclusion of any data or subjects	11 (5)
	Description of any outcomes that were measured and not reported in the results section	228 (97)
	Pilot or preliminary studies performed and listed	27 (11)
	Null or negative outcomes included in the results	96 (41)



**Table S4. Exploratory comparative analysis.** A comparison in the completeness of reporting between *Oncotarget*, which was delisted by MEDLINE in 2016,<sup>33</sup> compared to all other articles included in our review.

		Oncotarget N=29	Other N=207
Domain	Description	n (%) Reported	
Standards	Reporting guidelines	0 (0)	1 (0)
Replicates	Range of conditions	29 (100)	192 (93)
	Number of subject for one outcome	15 (52)	133 (64)
	Number of subjects for all outcomes	4 (14)	21 (10)
	Number of measurements for one outcome	10 (34)	95 (46)
	Number of measurements for all outcomes	0 (0)	2 (1)
Statistics	Statistical tests used	25 (86)	200 (97)
	Measure of central tendency	24 (83)	179 (86)
	Measure of dispersion	23 (79)	183 (88)
Randomization	Multiple experimental groups	29 (100)	205 (99)
	Random group assignment	15 (52)	89 (43)
	Method of randomization	0 (0)	2 (1)
Blinding	Group allocation blinding	3 (10)	4 (2)
	Result assessment blinding	2 (7)	13 (6)
Sample Size Estimation	Primary outcome	2 (7)	10 (5)
	Sample size calculation	2 (7)	10 (5)
	Mathematical method used	0 (0)	4 (2)
Inclusion and Exclusion Criteria	Total number of subjects	0 (0)	7 (3)
	Data/subjects/results exclusion	0 (0)	11 (5)
	No result omission	29 (100)	199 (96)
	Preliminary studies	1 (3)	26 (13)
	Null/negative results	9 (31)	87 (42)