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Patents Form 1

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Request for grant of a patent

Concept House Cardiff Road Newport South Wales NP10 8QQ

Application number GB 1600381 6

1.	Your reference		N40671	5GB		
2.	Full name, address and postcode of the applicant or each applicant	of	Replimune Limited The Magdalen Centre Oxford Science Park Robert Robinson Avenue Oxford OX4 4GA			Science Park
	Patents ADP number (if you know it)		United Kingdom		11627528001	
3.	Title of the invention		VIRUS	STRAIN		
1.	Name of your agent (if you have one) "Address for service" to which all correspondence sh be sent. This may be in the European Economic area Channel Islands (see warning note below) (including the postcode) Patents ADP number (if you know it)		J A Kemp J A Kemp 14 South Square Gray's Inn London WC1R 5JJ Greater London United Kingdom		1064590	01001
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Description: 28

Claim(s): 6

Abstract: 1

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Statement of inventorship and right to grant of a patent

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Request for search (Patents Form 9A): 0

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11. I/We request the grant of a patent on the basis of this application.

Signature: Subject: Pamela Tuxworth 23470; Issuer:

European Patent Office, European Patent

Office CA G2

Date: **08 Jan 2016**

12. Name, e-mail address, telephone, fax and/or mobile number, if any, of a contact point for the applicant

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VIRUS STRAIN

Field of the Invention

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The invention relates to an oncolytic immunotherapeutic agent and to the use of the oncolytic immunotherapeutic agent in treating cancer.

Background to the Invention

Viruses have a unique ability to enter cells at high efficiency. After entry into cells, viral genes are expressed and the virus replicates. This usually results in the death of the infected cell and the release of the antigenic components of the cell as the cell ruptures as it dies. As a result, virus mediated cell death tends to result in an immune response to these cellular components, including both those derived from the host cell and those encoded by or incorporated into the virus itself.

Viruses also engage with various mediators of the innate immune response as part of the host response to the recognition of a viral infection through e.g. toll-like receptors and cGAS/STING signalling resulting in the activation of interferon responses and inflammation which are also immunogenic signals to the host. These immune responses may result in the immunogenic benefit to cancer patients such that immune responses to tumor antigens provide a systemic overall benefit resulting in the treatment of tumors which have not been infected with the virus, including micro-metastatic disease, and providing vaccination against relapse.

The combined direct ('oncolytic') effects of the virus, and immune responses against tumor antigens (including non-self 'neo-antigens', i.e. derived from the particular mutated genes in individual tumors) is termed 'oncolytic immunotherapy'.

Viruses may also be used as delivery vehicles ('vectors') to express heterologous genes inserted into the viral genome in infected cells. These properties make viruses useful for a variety of biotechnology and medical applications. For example, viruses expressing heterologous therapeutic genes may be used for gene therapy. In the context of oncolytic immunotherapy, delivered genes may include those encoding specific tumor antigens, genes intended to increase the immunogenicity of antigens released following virus replication and cell death, to increase the general immune activation status of the tumor, or to increase the direct oncolytic properties (i.e. cytotoxic effects) of the virus.



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