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Dated 12th January 2017

Patents Form 1

Patents Act 1977 (Rule 12)

Request for grant of a patent

Concept House
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Application number **GB 1600380.8**

1. Your reference	N406714GB		
2. Full name, address and postcode of the applicant or of each applicant	Replimune Limited The Magdalen Centre Oxford Science Park Robert Robinson Avenue Oxford OX4 4GA United Kingdom 11627528001		
Patents ADP number (if you know it)			
3. Title of the invention	MODIFIED VIRUS		
4. Name of your agent (if you have one)	J A Kemp		
"Address for service" to which all correspondence should be sent. This may be in the European Economic area or Channel Islands (see warning note below) (including the postcode)	J A Kemp 14 South Square Gray's Inn London WC1R 5JJ Greater London United Kingdom 10645901001		
Patents ADP number (if you know it)			
5. Priority declaration: Are you claiming priority from one or more earlier-filed patent applications? If so, please give details of the application(s)			
Country	Application number	Date of filing	PDAS Access Code
6. Divisionals etc: Is this application a divisional application, or being made following resolution of an entitlement dispute about an earlier application. If so, please give the application number and filing date of the earlier application		Number of earlier UK application	Date of filing (day / month / year)
7. Inventorship: (Inventors must be individuals not companies)			
Are all the applicants named above also inventors?	No		
8. Are you paying the application fee with this form?			
No			

9. Accompanying documents: please enter the number of pages of each item accompanying this form.

Continuation sheets of this form

Description: **22**

Claim(s): **6**

Abstract: **1**

Drawing(s): **2**

If you are not filing a description, please give details of the previous application you are going to rely upon

Country	Application number	Date of filing	PDAS Access Code
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10. If you are also filing any of the following, state how many against each item.

Priority documents: **0**

Statement of inventorship and right to grant of a patent
(Patents Form 7): **0**

Request for search (Patents Form 9A): **0**

Request for a substantive examination (Patents Form 10): **0**

Any other documents (please specify): **Sequence Listing**

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
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12. Name, e-mail address, telephone, fax and/or mobile number, if any, of a contact point for the applicant	TUXWORTH, Ms. Pamela Mary Email: mail@jakemp.com Telephone: +44 20 3077 8600 Fax: +44 20 7430 1000
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MODIFIED VIRUS

Field of the Invention

The invention relates to an oncolytic immunotherapeutic agent and to the use of the
5 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
10 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. The immune response is also enhanced due to the
recognition by the host of so called damage associated molecular patterns (DAMPs) which
15 aid in the activation of the immune response.

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, for example, toll-like
receptors, cGAS/STING signalling and the recognition of pathogen associated molecular
patterns (PAMPs) resulting in the activation of interferon responses and inflammation
20 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.

25 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
30 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 induce immune responses or increase the immunogenicity of

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