PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/EP2015/069793	28.08.2015	28.08.2014

International Patent Classification (IPC) or both national classification and IPC
INV. A61K39/00 A61K41/00 C12N5/00

Applicant
PCI BIOTECH AS

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:	Date of completion of this opinion	Authorized Officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	see form PCT/ISA/210	Scheffzyk, Irmgard Telephone No. +49 89 2399-0

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. ☒ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

   a. ☒ forming part of the international application as filed:

      ☒ in the form of an Annex C/ST.25 text file.

      ☐ on paper or in the form of an image file.

   b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

   c. ☐ furnished subsequent to the international filing date for the purposes of international search only:

      ☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).

      ☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-17, 24-27, 31-33
	No:	Claims	18-23, 28-30
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-33
Industrial applicability (IA)	Yes:	Claims	1-33
	No:	Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Item V

Novelty:

The cell according to claim 18 is not distinguishable from any readily available cell which expresses an antigenic molecule, for instance from those taught in WO00/54802 (D1). Thus, claim 18 lacks novelty. Consequently, claims 19-23 lack novelty, too (see e.g. D1)

Due to the "and/or" option in claim 28 said claim also lacks novelty as the use of VLPs or virosomes containing an antigenic molecule as well as the use of a photosensitizing agent to stimulate an immune response is known in the prior art (see e.g. D1 or Yoo et al. (D2)). Consequently, claims 29 and 30 are not novel either.

Inventive step:

The subject-matter of claims 1-17, 24-27,31-33 seem to be novel as a method as defined in claim 1 is not clearly and unambiguously derivable from the available prior art. However, in view of WO02/44396 (D3) the subject-matter of present claims cannot be considered to be inventive as the combination of the features as recited in claim 1 is already suggested in D3 (see e.g. page 11, line 27, page 29, line 10 and page 1, first paragraph and page 5, second paragraph). Thus, in the absence of evidence demonstrating any unexpected effect entailed by the use of VLPs or virosomes to deliver antigens in combination with PCI method the presence of an inventive step cannot be acknowledged. The comparison made in example 1 of present application is not deemed suitable for said purpose as the effect of the antigen alone is compared with the effect of antigen plus PCI. However, comparison should be made between antigen plus PCI (which is described in D1) and antigen contained in VPL or virosome plus PCI.

Item VIII

1). Claim 24 refers to two uses and thus is objected to under Art. 6 PCT for lack of clarity.

2). Claims 26 and 27 also are objected to under Art. 6 PCT for lack of clarity as the method according to claim 1 to which these claims refer to covers an in vivo treatment. Hence, there is a combination of different categories in one claim.

3). Claim 31 contains an intrinsic clarity problem relating on the one hand to a combined preparation for simultaneous administration and on the other hand to separate or sequential administration.

4). In case present application is pursued as European patent application it is noted that claims 1-16 and 33 relating to a method of treatment would not be patentable.