

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.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.
PCT/US2018/045353

International filing date (day/month/year)
06.08.2018

Priority date (day/month/year)
07.08.2017

International Patent Classification (IPC) or both national classification and IPC
INV. A01K61/95 A01K61/13

Applicant
PHARMAQ 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 43bis.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 notified the International Bureau under Rule 66.1bis(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:



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Date of completion of
this opinion

see form
PCT/ISA/210

Authorized Officer

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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 43bis.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 13ter.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 13ter.1(a)).
 - ☐ on paper or in the form of an image file (Rule 13ter.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. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of

☐ the entire international application

☒ claims Nos. 15, 16

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international search (*specify*):

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed (*specify*):

☒ no international search report has been established for the whole application or for said claims Nos. 15, 16

☐ a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:

☐ furnish a sequence listing in the form of an Annex C/ST.25 text file, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.

☐ furnish a sequence listing on paper or in the form of an image file complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.

☐ pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rule 13*ter*.1(a) or (b).

☐ See Supplemental Box for further details

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has, within the applicable time limit:
- ☐ paid additional fees
 - ☐ paid additional fees under protest and, where applicable, the protest fee
 - ☐ paid additional fees under protest but the applicable protest fee was not paid
 - ☒ not paid additional fees
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
 - ☒ the parts relating to claims Nos. 1-14, 17

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

1. Statement

Novelty (N)	Yes: Claims	<u>7, 10, 11, 13, 14</u>
	No: Claims	<u>1-6, 8, 9, 12, 17</u>
Inventive step (IS)	Yes: Claims	<u>10, 11, 14</u>
	No: Claims	<u>1-9, 12, 13, 17</u>
Industrial applicability (IA)	Yes: Claims	<u>1-14, 17</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Reference is made to the following documents:

- D1: WO 03/069987 A1 (NORDICH FISH TECH AB [SE]; LEANDER LEIF [SE]; LEANDER OLOF [SE]) 28 August 2003 (2003-08-28)
- D2: WO 99/00306 A2 (GOLDSTEIN YEHIEL [IL]) 7 January 1999 (1999-01-07)
- D3: EP 2 551 222 A1 (VENDEE CONCEPT [FR]) 30 January 2013 (2013-01-30)
- D4: WO 2012/008843 A1 (MASKON AS [NO]; ANDRESEN HALVARD [NO]; ERIKSSON JOHN [NO]; HAEGGLUND J) 19 January 2012 (2012-01-19)

Re Item IV

Lack of unity of invention

- 1.1 This Authority considers that the application does not meet the requirements of unity of invention and that there are two inventions covered by the claims indicated as follows:

claims: 1-14, 17

a fish handling unit and an associated method of use, the unit comprising: an inspection system, a conveyor assembly and at least one robotic cell having a controller in communication with the inspection system; and an end effector configured to interact with the live fish moving along the conveyor assembly, based on information determined by the inspection system and received by the controller

claims: 15, 16

inspection system for live fish comprising a segmented conveyor

- 1.2 The reasons for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:
- 1.2.1 The common matter linking together the independent claims 1 and 15 is the following: "An inspection system configured to (for) inspect(ing) live fish, comprising a conveyor assembly".

This common matter does not comprise a single general inventive concept, based on same or corresponding special technical features within the meaning of Rule 13.2 PCT, because this feature combination forms part of the general knowledge of the skilled person, and it is disclosed in at least document D4: inspection system (12), conveyor (14).

- 1.2.2 Hence, the following separate inventions or groups of inventions are not so linked as to form a single general inventive concept:

Claims 1 to 14 and 17 (relate to a fish handling unit and an associated method of use, the unit comprising: an inspection system, a conveyor assembly and at least one robotic cell having a controller in communication with the inspection system; and an end effector configured to interact with the live fish moving along the conveyor assembly, based on information determined by the inspection system and received by the controller).

Claims 15 and 16 (relate to a specific inspection system comprising a segmented conveyor, and associated method of use).

There is no technical relationship between the features of the robotic cell of claim 1 and the features of the inspection system of claim 15, because they perform two distinct operations (both in time and in space) during the handling of fish.

- 1.2.3 Also, examining the possible correspondence by technical effect, one finds that the technical effect of the first invention is (p.1 l.14-15) that the need of "current upstream orienting sub-systems (physically challenging to the fish and requiring a large footprint in the fish hatchery)" is obviated;

and that the technical effect of the second invention is to provide (p.5 l.28-30) "a three-dimensional representation of each fish, regardless of orientation of the fish on the conveyor assembly."

so that the different technical features cannot be considered to be "corresponding special technical features".

- 1.2.4 Hence, the claims comprise neither the same, nor corresponding special technical features, so the technical relationship between the subject matter of the claims required by Rule 13.2 PCT is lacking and the claims are not so linked as to form a single general inventive concept as required by Rule 13.1 PCT.

- 1.3 Consequently the application does not meet the requirement for unity of invention.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

2 The present application does not meet the criteria of Article 33(2) PCT, because the subject-matter of claims 1, 4, 8, 9, 12 and 17 is not new in the sense of Article 33(2) PCT.

2.1 Document D1 discloses, see the whole document and in particular the passages cited in the search report, the reference signs applying to this document:

"(claim 1) A fish handling unit, comprising:
an inspection system (9) configured to inspect a plurality of live fish;
a conveyor assembly (1) configured to transport the live fish to the inspection system;
at least one robotic cell (20, 31) having a controller configured to control operation thereof, the controller being in communication with the inspection system; and
an end effector (8, 23, 29) operably engaged with the robotic cell, the end effector being configured to interact with the live fish moving along the conveyor assembly, based on information determined by the inspection system and received by the controller,
- (claim 4) wherein the end effector comprises a gripper assembly (8) and an injection assembly (23),
- (claim 8) wherein the end effector comprises an injection assembly (23) and a pusher (29) individually controllable to apply compression to the live fish during an injection event."

Document D1 further discloses:

"(claim 9) A method of processing live fish, the method comprising:
sedating (p.3 l.1) a plurality of live fish;
conveying the live fish to an inspection system (9);
inspecting the live fish with the inspection system to determine information about each live fish;
communicating the information about the inspected fish to a robotic cell (p.4 l.

9-12) having an end effector operably engaged therewith and configured to interact with the live fish while conveyed; and processing the live fish with the end effector,

(claim 12) wherein processing the live fish with the end effector comprises injecting the live fish with at least one treatment substance."

Document D1 further discloses:

"(claim 17) A method of processing live fish implementing the fish handling unit as above."

2.2 From the above it appears that all the features of claims 1, 4, 8, 9, 12 and 17 are known from this one document D1 at least by implication and the subject matter of said claims can therefore not be regarded as new.

2.3 Also documents D2 and D3 disclose all the features of at least claim 1, and therefore the subject matter of said claim can not be regarded as new in view of D2 and D3 either.

D2 further discloses all the features of at least claims 2, 3, 5 and 6.

D3 further discloses all the features of at least claims 2 and 3.

3 Dependent claim 13 does not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, because it relates to minor operational features which are partly if not wholly revealed in the prior art (see the document D4, p.13 l.14) or which form part of the normal consideration of the person skilled in the art, i.e. they are the result of routine engineering and do not constitute an inspired design.

4 The combination of the features of dependent claims 3+4 is neither known from, nor rendered obvious by, the available prior art.

5 The combination of the features of dependent claim 10+12 is neither known from, nor rendered obvious by, the available prior art.

Re Item VII

Certain defects in the international application

- 6 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
- 7 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D1, D2 and D3 is not mentioned in the description, nor are these documents identified therein.
