

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: TSUKUNI & ASSOCIATES KOJIMACHI BUSINESS CENTER 5-3-1, Kojimachi, Chiyoda-ku, Tokyo 1020083 Japan
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing <i>(day/month/year)</i>	25.04.2017
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Applicant's or agent's file reference FP4113PCT-W	FOR FURTHER ACTION See paragraph 2 below
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International application No. PCT/JP2017/003621	International filing date <i>(day/month/year)</i> 01.02.2017	Priority date <i>(day/month/year)</i> 02.02.2016
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International Patent Classification (IPC) or both national classification and IPC Int.Cl. See Supplemental Box

Applicant OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY SCHOOL

<p>1. This opinion contains indications relating to the following items:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> 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 <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application <p>2. FURTHER ACTION</p> <p>If a demand for international preliminary examination is made, this opinion will 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.</p> <p>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.</p> <p>For further options, see Form PCT/ISA/220.</p>

Date of completion of this opinion	17.04.2017
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Name and mailing address of the ISA/JP <p style="text-align: center;">Japan Patent Office</p> 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer AKASAKA, Yuki Telephone No. +81-3-3581-1101 Ext. 3252
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2017/003621

Box No. I Basis of this 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(b)).

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:

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PCT/JP2017/003621

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)	Claims	<u>2, 7, 11, 14-16</u>	YES
	Claims	<u>1, 3-6, 8-10, 12-13</u>	NO
Inventive step (IS)	Claims	<u>14-16</u>	YES
	Claims	<u>1-13</u>	NO
Industrial applicability (IA)	Claims	<u>1-16</u>	YES
	Claims	<u></u>	NO

2. Citations and explanations:

D1: JP 2009-222401 A (TOKYO METROPOLITAN INDUSTRIAL TECHNOLOGY RESEARCH INSTITUTE) 2009.10.01, Paragraphs [0011]-[0019] and [0026] (No Family)
D2: WO 2007/123763 A2 (PACIFIC BIOSCIENCES OF CALIFORNIA, INC.) 2007.11.01, Paragraph [0092] & US 2007/0238679 A1 & EP 2002019 A2

The subject matter of claims 1, 3-6, 8-10, 12-13 does not meet the requirement of novelty. D1(see paragraphs [0011]-[0019] and [0026]) discloses an array or a kit comprising a substrate and a probe molecule, wherein the surface of the substrate has patterned nano features of silane and the probe molecule is conjugated using a silane coupling agent.

Regarding claims 3, 8 and 12, D1(paragraph [0013]) discloses that the diameter of the nano feature is patterned from 10 nm to 2 μ m.

Regarding claims 4, 9 and 13, D1(paragraph [0026]) discloses a protein array.

The subject matter of claims 2, 7, 11 does not involve an inventive step over document D1 in view of document D2. Using PEG-silane for blocking the un-patterned surface of the substrate is well known as seen in D2 (paragraph [0092]).

The subject matter of claims 14-16 is considered to involve an inventive step over the documents cited in the International Search Report (ISR).

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

G01N33/547(2006.01) i, C12M1/00(2006.01) i, G01N33/543(2006.01) i,
G01N37/00(2006.01) i