

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT3285973

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
HEINRICH-HEINE-UNIVERSITY DUESSELDORF	10/14/2014
TECHNISCHE UNIVERSITAT DORTMUND	10/27/2014
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	AMLIKA MERCANTILE PRIVATE LIMITED
<b>Street Address:</b>	A/4-202, MILAN NAGER
<b>Internal Address:</b>	SOCIAL NAGAR KALA KILLA, SANGAM GULLY
<b>City:</b>	DHARAVI, SION, MUMBAI
<b>State/Country:</b>	INDIA
<b>Postal Code:</b>	400017
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	14346354
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(617)502-5002
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	6172485000
<b>Email:</b>	patentdocket@choate.com
<b>Correspondent Name:</b>	CHOATE, HALL & STEWART LLP
<b>Address Line 1:</b>	2 INTERNATIONAL PLACE
<b>Address Line 4:</b>	BOSTON, MASSACHUSETTS 02110
<b>ATTORNEY DOCKET NUMBER:</b>	2010809-0006
<b>NAME OF SUBMITTER:</b>	BRENDA HERSCHBACH JARRELL
<b>SIGNATURE:</b>	/Brenda Herschbach Jarrell/
<b>DATE SIGNED:</b>	03/27/2015
<b>Total Attachments: 24</b>	
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MINISTRY OF COMMERCE  
GOVERNMENT OF INDIA  
NEW DELHI  
144437  
SEP 26 2014  
17:00  
R.0000100 P85432  
INDIA



## PATENT TRANSFER AGREEMENT

between

**Amlika Mercantile Private Limited**, a company existing and incorporated in India under the provisions of the Companies Act, 1956 with its registered office at A/4-202, Milan Nagar, Social Nagar, Kala Killa, Sangam Gully, Dharavi, Sion, Mumbai - 400017, India, represented by its Authorized Signatory (hereinafter referred to as "AMPL" which expression shall, unless it is repugnant to the context or meaning thereof, be deemed to mean and include its Affiliated Companies, successors-in-interest and permitted assigns) on the FIRST PART;

and

**Heinrich-Heine-University Duesseldorf**, UniversitaetsstraÙe 1, 40225 Duesseldorf, Germany, represented by the Rector Prof. Dr. med. Dr. phil. Hans Michael Piper, represented by the prorector of research and innovation Prof. Dr. Lutz Schmitt (hereinafter referred to as "HHU") on the SECOND PART.

and

**Technische Universität Dortmund**, August-Schmidt-StraÙe 4, 44227 Dortmund, Germany, represented by the Rector Prof. Dr. Ursula Gather (hereinafter referred to as "TU DORTMUND") on the THIRD PART.

(hereinafter collectively referred to as the "UNIVERSITIES").

for the purpose of conducting preliminary negotiations to this Agreement represented by **PROvendis GmbH**, Schlossstrasse 11-15, 45468 Muelheim/R, Germany, represented by the Managing Director Alfred Schillert

AMPL and UNIVERSITIES are hereinafter individually referred to as "PARTY" and collectively the "PARTIES", as the case might be -

Agreement Number: 275010-K2-131114

## PREAMBLE

- A) Within the framework of a cooperation between UNIVERSITIES in research and development activities, the UNIVERSITIES, through Prof. Lars Blank (employee of

TU DORTMUND) and Prof. Frank Rosenau and Dr. Susanne Wilhelm (employees of HHU) invented a process for the Recombinant Production of Design Rhamnolipids. During the cooperation the UNIVERSITIES also invented through Prof. Lars Blank and Mr. Till Tiso (employees of TU DORTMUND), and Prof. Frank Rosenau, Dr. Susanne Wilhelm and Mr. Andreas Wittgens (employees of HHU) a process for effective production of Rhamnolipids. On 21 September 2011 the UNIVERSITIES filed a European patent application for said processes with the title "Means and methods for rhamnolipid production" under the file number EP 11182080.9. In addition thereto, an international patent application was filed on 21 September 2012 under the file number PCT/EP 2012/068630 claiming the priority of the European application which was abandoned after PCT-Filing. The international patent application was nationalized in the United States of America under the file number US 14/346,354 on 21 March 2014, in Europe under the file number EP 12 775 455 4 on 17 April 2014 and in India under the file number 3104/DELNP/2014.

- B) The UNIVERSITIES are joint holders of the invention and the patent application. The UNIVERSITIES have not previously granted a license for the invention or for the patent application.
- C) The UNIVERSITIES are interested in the commercial exploitation of the invention and the industrial property rights within the framework of a transfer of the patent application against remuneration.
- D) AMPL, within the framework of its legally-authorized business operations, is interested in the acquisition of the UNIVERSITIES' invention and industrial property rights described above and intends to develop chemical compounds in the category of "Rhamnolipids" (hereinafter the "Product") based on the invention or on the industrial property rights, to develop the Product until it is ready for market, and to manufacture and distribute the Product.

Therefore, to achieve the aforementioned objectives, the Parties hereto agree as follows:

## 1 DEFINITIONS

- 1.1 "Contract Patent Rights" shall mean US patent application No. US 14/346,354, the European patent application No. EP 12 775 455 4 and the Indian patent application No. 3104/DELNP/2014 ("Means and methods for rhamnolipid production").
- 1.2 "Contract Products" shall mean the products, which were manufactured using the invention underlying the Contract Patent Rights, were developed and/or manufactured based thereon, which constitute an integral part of the invention, or which fall within the scope of the Contract Patent Rights.
- 1.3 "Improvements" shall mean research or development results owned by TU Dortmund and emerging from the working group of Univ.-Prof. Dr. Rolf Wichmann named "Laboratory of Biochemical Engineering" for which patent protection can independently be applied for, which are needed for the exploitation of Contract Patent Rights by AMPL and which are within the area of Rhamnolipids technology and its peripheral area. "Improvements" are not research or development results resulting from externally funded projects, other projects financed by third parties or projects carried out by TU DORTMUND together with third parties. "Improvements" are not research or development results resulting from projects with AMPL which are conducted under a separate Agreement, e. g. Research and Development Agreements between TU DORTMUND and AMPL or

Cooperation Agreements between TU DORTMUND and AMPL in public funded Projects. Improvements are only improvements made by TU DORTMUND within five (5) years after signature of this Patent Transfer Agreement.

- 1.4 "Affiliated Company" shall mean any company or business entity which controls, is controlled by, or is under common control with either of the Parties. For purposes of this definition, "control" shall mean the possession, directly or indirectly of the power to direct or cause the direction of the management and policies of an entity (other than a natural person), whether through the majority ownership of voting capital stock, by contract or otherwise.

## 2 OBJECT OF THE AGREEMENT

- 2.1 The UNIVERSITIES are the 100% owners of the Invention "Means and methods for rhamnolipid production" and the Contract Patent Rights.
- 2.2 The UNIVERSITIES hereby sell, assign and transfer to AMPL their ownership rights, title and interest in the Invention and in the Contract Patent Rights, as well as all respective rights and duties associated therewith.
- 2.3 This Contract Patent Right transfer includes all right, title and interest of UNIVERSITIES in all causes of action and enforcement rights for the Contract Patents, including all of its rights to pursue damages, injunctive relief and other remedies for past, current and future infringement of the Contract Patent Rights.
- 2.4 Ownership of the rights to the Invention and the ownership rights to the Contract Patent Rights shall be retained by the UNIVERSITIES until full payment of the single fixed remuneration in Article 5.2. The UNIVERSITIES agree to record AMPL as the owner of the Contract Patent Rights in the patent register following full payment of the single fixed remuneration; the UNIVERSITIES shall provide any documents, provide all necessary signatures and/or provide all necessary declarations required therefor.
- 2.5 AMPL hereby accepts the transfer.
- 2.6 AMPL shall be responsible for maintaining the Contract Patent Rights to the best of its ability following signature of this Agreement. The UNIVERSITIES shall take those actions as instructed by AMPL to maintain the Contract Patent Rights in the patent register until AMPL is recorded in the patent register. AMPL shall bear the costs for maintaining and enforcing the Contract Patent Rights following signature of this Agreement. In addition, AMPL shall pay UNIVERSITIES the costs arising UNIVERSITIES from the nationalisation and regionalisation of the PCT-patent application to the Contract Patent Rights in USA, Europe and India; costs which are already accrued to them from the nationalisation and regionalisation of the PCT-patent application to the Contract Patent Rights in USA, Europe and India and costs resulting or in accordance from its actions according to this Article 2.6 sentence 2. AMPL shall pay the patent costs arising from the nationalisation of the Contract Patent Rights directly to the corresponding patent offices and patent attorney. In case only UNIVERSITIES are entitled to conduct payments because UNIVERSITIES are recorded in the patent register or UNIVERSITIES have already entrusted a patent attorney with nationalisation/regionalisation of the PCT-patent application before the signature of this Agreement, AMPL shall pay UNIVERSITIES the costs. If

UNIVERSITIES are liable to tax on sales/purchases tax is also charged. If no tax was charged, but it turns out later that the invoice amount had to include tax, UNIVERSITIES reserve the right to charge AMPL for the tax not paid. AMPL resign for lapse of time in that case, i.e. AMPL shall not plead that AMPL is not obliged to pay the applicable tax due to statutory limitation. AMPL shall be solely responsible for pursuing third party infringers of the Contract Patent Rights and no obligation on the part of the UNIVERSITIES shall arise with respect thereto. While the UNIVERSITIES are not obligated to participate in pursuing third party infringers, the UNIVERSITIES must place AMPL in the position to do so at AMPL's expense.

- 2.7 AMPL shall guarantee the compliance with the rights of the inventors. AMPL shall especially guarantee that the inventors are named in patent applications/patents.

### 3 *RIGHT TO USE*

- 3.1 AMPL grants to the UNIVERSITIES a non-exclusive, royalty-free, perpetual, and worldwide right to use the invention other than commercialisation of the patents and the Contract Patent Rights for teaching, research and development purposes, which grant shall include public funded research and development and all research and development financed by UNIVERSITIES on own costs. The inventors have the rights according to German Arbeitnehmererfindungsgesetz.
- 3.2 The UNIVERSITIES and the inventors have the right to publish the invention and the Contract Patent Rights in conventional scientific form in media of their choice.

### 4 *DOCUMENTS, FORMULAE ETC.*

AMPL already has all documents necessary to use the invention and the Contract Patent Rights

### 5 *REMUNERATION*

- 5.1 For the transfer of rights according to Article 2 AMPL shall pay the remunerations in Articles 5.2-5.3 to the UNIVERSITIES. The remuneration to be paid by AMPL consists of a single fixed remuneration and of milestones.
- 5.2 The single fixed remuneration amounts to € 10.000,- Payable within 30 days from the Effective Date (as defined below) of this Agreement.
- 5.3 The following payments are due for the following milestones:
- |           |   |
|-----------|---|
| €5.000,-  | upon the confirmation of first results at 5 litre level fermentation.   |
| €10.000,- | upon the up scaling to a 50 litre level at AMPL facilities.   |
| €10.000,- | upon the up scaling to a 500 litre level at AMPL facilities.  |
| €50.000,- | upon the production of the first chemical product under a claim of the Contract Patent Rights (e.g. in the field of agriculture). |

€25.000,- upon the production of any second chemical product under a claim of the Contract Patent Rights (e.g. in the field of cosmetics or pharmaceuticals)

- 5.4 Milestone payments are respectively due and payable on the first day of the month following the event. AMPL shall inform the UNIVERSITIES of the occurrence of a milestone completing event without undue delay. AMPL shall, irrespective of any milestone completions, report to the UNIVERSITIES in writing of relevant circumstances relating to the completion of milestones as of February 28 and July 31 of every year. All milestone payments shall be due and payable upon the transfer of the Contract Patent Rights to a third party.
- 5.5 AMPL shall pay the UNIVERSITIES the remunerations in Articles 5.2-5.3 correspondent to their invention shares/shares to the Contractual Patent Rights (HHU 64,6% / TU Dortmund 35,4%). Each UNIVERSITY shall invoice its part of the remunerations to AMPL.
- 5.6 If AMPL uses the Invention /Contract Patent Rights or let third parties use it outside of the area of Rhamnolipids and therefore a striking disparity will arise with respect to the agreed-upon remuneration and the direct income or advantages from the use of the Invention/Contractual Patent Rights the Parties shall upon the demand of the UNIVERSITIES adapt the remuneration for the Invention/Contract Patent Rights so that the UNIVERSITIES are granted a higher share of the financial advantages which is equivalent to the market price.
- 5.7 AMPL shall observe all applicable laws and regulations. Especially AMPL is responsible for the observation of all applicable tax laws and regulations (e.g. reverse charge). If UNIVERSITIES are liable to tax on sales/purchases, tax is also charged. If no tax was charged, but it turns out later that the invoice amount had to include tax, UNIVERSITIES reserve the right to charge AMPL for the tax not paid. AMPL resigns for lapse of time in that case, i.e. AMPL shall not plead that AMPL is not obliged to pay the applicable tax due to statutory limitation.
- 5.8 UNIVERSITIES shall also observe all applicable laws and regulations. UNIVERSITIES are responsible for the observation of all tax laws and regulations applicable to UNIVERSITIES. For the avoidance of doubt the Parties have the mutual understanding that UNIVERSITIES are not responsible for tax on sales/purchase (reverse charge).
- 5.9 The remuneration shall be payable in Euros. Invoices issued in a foreign currency shall be converted to Euros at the applicable purchase price for Euros listed on the Frankfurt Stock Exchange on the invoice date.
- 5.10 No claim to a refund of the remuneration can be made, even if this Agreement terminates for any reason.

## 6 CONFIDENTIALITY

- 6.1 "Confidential Information" (hereinafter the "Information") shall mean this Agreement (in respect of its content) and all confidential or proprietary written, recorded, electronic or oral information or data (including without limitation research, developmental, engineering, manufacturing, technical, marketing, sales, financial, operating, performance, cost, business and process information or data, trade

secrets, discoveries, ideas, designs, data, processes, developments, flow diagrams, and know-how.) which is (i) provided to a Party (the "Receiving Party") by the other Party (the "Disclosing Party") in the course of the exchange of such information or data between the Parties in connection with this Patent Transfer Agreement.

- 6.2 The Parties shall maintain as secret and not disclose any confidential information provided by the other Party and shall undertake all necessary measures to prevent third parties from obtaining access thereto. Information disclosed to AMPL by employees of PROvendis is herewith deemed to constitute information disclosed by the UNIVERSITIES.
- 6.3 The Parties will only allow knowledge of the information exchanged and access to the documents to those employees and persons who are either bound to maintain confidentiality based on their employment contracts or who have executed separate confidentiality agreements at least as strict as that entered into between the Parties.
- 6.4 The duty of confidentiality shall also apply to Affiliated Companies, licensees and/or customers of the Parties who receive access to the information.
- 6.5 The duty to maintain confidentiality shall apply to all information going beyond the state of the art when disclosed which is designated as confidential or which is to be considered as confidential based on the circumstances of disclosure irrespective of whether the information was disclosed orally, in writing, in machine-readable form, as equipment, tests, samples, products or in some other manner.
- 6.6 The duty to maintain confidentiality shall not apply to information for which the invoking Party proves that:
  - The receiving Party can prove that it knew and was entitled to the information prior to the time of its disclosure hereunder; or
  - The information was part of the public domain or was generally available prior to the time of its disclosure hereunder; or
  - The information became a part of the public domain or generally available subsequent to its receipt through no act or fault on the part of the receiving Party; or
  - The information essentially reflects information which was obtained by the receiving Party at any time from a third party which had the right to disclose or make available the information to the receiving Party; or
  - The information must be disclosed to a court or to an administrative agency pursuant to mandatory legal requirements or an administrative or court order, in which case the receiving Party will inform the disclosing Party of such requirement without undue delay so as to allow the disclosing Party to contest the mandatory legal requirements or administrative or court order. Any disclosure shall thereby be limited to the absolute minimum.



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**7 REPRESENTATIONS, LIABILITY AND INDEMNIFICATION**

**7.1 UNIVERSITIES represents that:**

**7.1.1** UNIVERSITIES are the true owners of all right, title and interest in and to the Contract Patent Rights, and UNIVERSITIES do not know of asserted or unasserted claims of ownership of the Contract Patent Rights by any party other than the UNIVERSITIES; and

**7.1.2** UNIVERSITIES do not know of any inventors of the Contract Patent Rights other than the named inventors of the Contract Patent Rights and do not know of asserted or unasserted claims of inventorship of the Contract Patent Rights by any person other than the named inventors of the Contract Patent Rights; and

**7.1.3** UNIVERSITIES filed a request for an international patent search report and received this international patent search report and the written opinion of the International Searching Authority which have been established with the European Patent Office on 7 January 2013 with the content as stated in **Exhibit A**; and

**7.1.4** on the Effective Date UNIVERSITIES have no knowledge of any third party rights in and to the Contract Patent Rights.

**7.2** AMPL has knowledge of the Invention, Contract Patent Rights and of the contents and the prosecution status (file wrapper) of the Contract Patent Rights based on the information provided by the UNIVERSITIES. The UNIVERSITIES assume no liability for the patentability or for the legal status of the Contract Patent Rights or that no third party rights exist which prevent the use of the Contract Patent Rights or that no third party rights would be infringed by the use of the Contract Patent Rights, or for possible material defects of the Contract Patent Rights and the Contract Products.

**7.3** UNIVERSITIES assume no liability for the technical realization, technical usability, commercial exploitation, manufacturing maturity, production profitability and/or for the competitiveness of the Contract Patent Rights or the Contract Product. The UNIVERSITIES also assume no liability for the absence of a third party prior right to use.

**7.4** UNIVERSITIES assume no liability for cases of their own simple/normal negligence or for the simple/normal negligence of their legal representatives or agents. For indirect damages, consequential damages, lost profits and punitive damages the UNIVERSITIES only assume liability for cases of their own gross negligence or intent or for gross negligence or intent of their legal representatives or agents. In case of gross negligence damage claims are restricted to the contractual remuneration receipt by a UNIVERSITY at the moment of the

occurrence of a damage. UNIVERSITIES are not liable towards AMPL for damages caused by the other UNIVERSITY.

- 7.5 The UNIVERSITIES shall indemnify and hold AMPL harmless against any damages, losses or third party claims arising from a culpable violation of Article 7.1.3 or 7.1.4 which can be shown to be due to the negligence or fault of the UNIVERSITIES as stated in Article 7.4.

#### **8 DEFENSE OF THE CONTRACT PATENT RIGHTS**

AMPL shall notify the UNIVERSITIES without undue delay if a third party files a petition for a preliminary injunction or a damage claim against AMPL based on its use of the Contract Patent Rights. The UNIVERSITIES are entitled to join any litigation conducted by AMPL as a party.

#### **9 RIGHT OF FIRST REFUSAL**

- 9.1 TU DORTMUND hereby grants AMPL the right of first refusal for the acquisition of an exclusive or non-exclusive license for "Improvements" to market conditions or for the transfer of the "Improvements" to market conditions in a separate agreement. AMPL and TU DORTMUND shall negotiate about the separate agreement within sixty (60) calendar days from the date of receiving the notification from TU DORTMUND that an "Improvement" has been made. In case AMPL and TU DORTMUND do not conclude the agreement within sixty (60) calendar days from the date of receiving the notification from TU DORTMUND that the "Improvement" has been made TU DORTMUND is free to dispose about the "Improvement" as it deems fit.

- 9.2 The right of first refusal is subject to the condition that TU DORTMUND is legally entitled to dispose over the "Improvements" and decides to market the "Improvements".

#### **10 TERMINATION OF THE AGREEMENT**

This Agreement shall enter into effect on the date the last Party signs this Agreement (Effective Date). UNIVERSITIES are entitled to terminate this Agreement in case of a delay of the payment of a remuneration according to Article 5 or in case AMPL infringes basic contractual obligations.

#### **11 MISCELLANEOUS**

- 11.1 To the extent a provision or section of this Agreement is invalid, unenforceable, void or contains a gap, whether in whole or in part, the remaining provisions or sections of this Agreement shall remain unaffected thereby. The provision or section which is invalid, unenforceable, void, or contains a gap shall be deemed to be replaced by a provision which has the closest result that the Parties were attempting to achieve by the invalid or unenforceable provision.

11.2 A Party may only assign its rights and duties under this Agreement with the prior written consent of the other contracting Party.

11.3 This Agreement shall be governed by and construed in accordance with the law of the Federal Republic of Germany, without regard to the conflict of law principles thereof. The place of jurisdiction shall be Duesseldorf, Germany.

11.4 No collateral agreements exist. Changes and amendments of this Agreement require the written form, unless a stricter form is required by law. This also applies also to the change or amendment of this provision.

11.5 Documents and notices under this Agreement shall be served on or directed to the following contact persons at the addressee set forth below:

#### UNIVERSITIES

Provendis GmbH, Mr Alfred Schillert  
Schlossstrasse 11-15, 45468 Muelheim/R

#### AMPL

Amlika Mercantile Private Limited (AMPL), *Dr. Barishwade Pandey* 4-202,  
Milan Nagar, Social Nagar, Kala Killa, Sangam Gully, Dharavi, Sion, Mumbai -  
400017, India

Dortmund, dated 27/10/2014

TU DORTMUND

On behalf of the Chancellor

*A. Bartkowski*  
Andrea Bartkowski

For the local management:

*Prof. Wichmann*  
Prof. Wichmann

*Hyderabad*, dated 20th sep 2014

AMLIKA MERCANTILE PRIVATE LIMITED

On behalf of AMPL

*[Signature]*

Duesseldorf, dated x 14.10.2014

On behalf of HHU x C. Schell

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**Exhibit A**

International patent search report and the written opinion  
of the International Searching Authority

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

## PCT

To  
Weinzierl, Gerhard  
SCHWICK, WEINZIERL & KOCH  
Lindsehergasse 54  
D-80339 Munich  
ALLEMAGNE

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

Frist  
notiert

INGEGANGEN  
10. JAN 2013  
SCHWICK & WEINZIERL

Akt 10 PCT Andenken 7.2.2013  
Chapit II + Skizzenbuch WISA 21.2.2013

(PCT Rule 44.1)

Date of mailing (day/month/year)	7 January 2013 (07-01-2013)
Applicant's or agent's file reference TUD14091 PCT	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/EP2012/088630	International filing date (day/month/year) 21 September 2012 (21-09-2012)
Applicant HEINRICH-HEINE-UNIVERSITAET	

1 ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 18:**  
The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46).

**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the International Search Report.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland. Facsimile No.: (41-22) 338 82 70

For more detailed instructions, see PCT Applicant's Guide, International Phase, paragraphs 9.004 - 9.011.

2 ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3 ☐ With regard to any protest against payment of (an) additional fee(s) under Rule 46.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices

☐ no decision has been made yet on the protest, the applicant will be notified as soon as a decision is made.


4 **Reminders**  
The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. Following the expiration of 30 months from the priority date, these comments will also be made available to the public.

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before completion of the technical preparations for international publication (Rules 50bis.1 and 50bis.3).

Within 18 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later), otherwise, the applicant must, within 30 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 18 months.

For details about the applicable time limits, Office by Office, see [www.wipo.int/pct/en/texts/time\\_limits.html](http://www.wipo.int/pct/en/texts/time_limits.html) and the PCT Applicant's Guide, National Chapters.

Name and mailing address of the International Searching Authority  European Patent Office, P. O. Box 5118 Patentlaan 2 NL-2009 PH Hague Tel: (+31-70) 340-3340 Fax: (+31-70) 340-3016	Authorized officer VAN EKELENBURG, Jacqueline Tel: +31 (0)70 340-3321
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Form PCT/ISA/220 (July 2010)

PATENT  
REEL: 035273 FRAME: 0900

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>TUD14091PCT</b>	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below	
International application No. <b>PCT/EP2012/068630</b>	International filing date (day/month/year) <b>21/09/2012</b>	(Earliest) Priority Date (day/month/year) <b>21/09/2011</b>
Applicant <b>HEINRICH HEINE UNIVERSITÄT</b>		

This international search report has been prepared by the International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of ..... sheets

☒ It is also accompanied by a copy of each prior art document cited in this report

#### 1. Basis of the report

a. With regard to the language, the international search was carried out 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))

b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6(a)).

c. ☒ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. 1

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (see Box No. III)

#### 4. With regard to the title,

- ☒ the text is approved as submitted by the applicant  
☐ the text has been established by this Authority to read as follows:

#### 5. With regard to the abstract,

- ☒ the text is approved as submitted by the applicant  
☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

#### 6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. ....  
☐ as suggested by the applicant  
☐ as selected by this Authority, because the applicant failed to suggest a figure  
☐ as selected by this Authority, because this figure better characterizes the invention  
b. ☐ none of the figures is to be published with the abstract

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP2012/068630

Box No. 1 Nucleotide and/or amino acid sequence(s) (Continuation of Item 1.c of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

a. (means)

☐

on paper

☒

in electronic form

b. (time)

☒

in the international application as filed

☐

together with the international application in electronic form

☐

subsequently to this Authority for the purpose of search

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

3. Additional comments.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP2012/068630

## A. CLASSIFICATION OF SUBJECT MATTER

INV. C12N9/10 C12P7/64 C12P19/44  
ADD.

According to International Patent Classification (IPC) or to both, national classification and IPC.

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C12N C12P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, Sequence Search, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim no.
X	OCHSNER: "Production of Pseudomonas aeruginosa rhamnolipid biosurfactants in heterologous hosts", APPLIED AND ENVIRONMENTAL MICROBIOLOGY, vol. 61, no. 9, 1 January 1995 (1995-01-01), page 3503, XP055005925, ISSN: 0099-2240 cited in the application	1,3-5, 7-17, 20-33
Y	abstract page 3504	2,6,18, 19

-/-

☒ Further documents are filed in the continuation of Box C☒ See patent family annex

## Special categories of cited documents

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (to be specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"Z" document member of the same patent family

Date of the actual completion of the international search

20 December 2012

Date of mailing of the international search report

07/01/2013

Name and mailing address of the ISA/

European Patent Office - P.B. 5518 Patentreize  
NL - 1280 HV Hilversum  
Tel: (+31 70) 540-2040  
Fax: (+31 70) 540-2040

Authorized officer

van Voorst, Frank



# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP2012/068630

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	NATIVIDAD CABRERA-VALLADARES ET AL: "Monorhamnolipids and 3-(3-hydroxyalkanoxyloxy)alkanoic acids (HAAs) production using <i>Escherichia coli</i> as a heterologous host", APPLIED MICROBIOLOGY AND BIOTECHNOLOGY, SPRINGER, BERLIN, DE, vol. 73, no. 1, 8 June 2006 (2006-06-08), pages 187-194, XP019441/25, ISSN: 1432-0614, DOI: 10.1007/s00253-006-0468-5	1,3-5, 7-17, 20-33
Y	abstract page 187; table 2	2,6,18, 19
Y	JEIRY TORIBIO ET AL: "Rhamnolipids: Production in bacteria other than <i>Pseudomonas aeruginosa</i> ", EUROPEAN JOURNAL OF LIPID SCIENCE AND TECHNOLOGY, vol. 112, no. 10, 20 July 2010 (2010-07-20), pages 1082-1087, XP055020025, ISSN: 1438-7697, DOI: 10.1002/ejlt.200900256 abstract page 1086	2,18
Y	CHOI M H ET AL: "Metabolic relationship between polyhydroxyalkanoic acid and rhamnolipid synthesis in <i>Pseudomonas</i> <i>aeruginosa</i> : Comparative <sup>13</sup> C NMR analysis of the products in wild-type and mutants", JOURNAL OF BIOTECHNOLOGY, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 151, no. 1, 10 January 2011 (2011-01-10), pages 30-42, XP027578398, ISSN: 0168-1656 [retrieved on 2010-12-29] cited in the application abstract	5
X,P	ANDREAS WITIGENS ET AL: "Growth independent rhamnolipid production from glucose using the non-pathogenic <i>Pseudomonas putida</i> KT2440", MICROBIAL CELL FACTORIES, BIOMED CENTRAL, LONDON, NL, vol. 10, no. 1, 17 October 2011 (2011-10-17), page 80, XP021093670, ISSN: 1475-2859, DOI: 10.1186/1475-2859-10-80 the whole document	1-33

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# INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP2012/068630

(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X,P	WD 2012/013554 A1 (EVONIK GOLDSCHMIDT GMBH [DE]; SCHAFFER STEFFEN [DE]; WESSEL MIRJA [DE]) 2 February 2012 (2012-02-02) the whole document	1-33

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/EP2012/068630

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2012013554 A1	02-02-2012	DE 102010032484 A1	02-02-2012
		WO 2012013554 A1	02-02-2012
*****			

Form PCT/EP2012/068630 (Patent family members) (Page 2/2)

# 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/EP2012068630

International filing date (day/month/year)  
21.09.2012

Priority date (day/month/year)  
21.09.2011

International Patent Classification (IPC) or both national classification and IPC  
INV. C12N9/10 C12R7E4 C12P1944

Applicant  
HEINRICH-HEINE-UNIVERSITAET

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



European Patent Office  
P.O. 5818 Patentlaan 2  
NL-2280 HV Rijswijk - Pays Bas

Date of completion of  
this opinion

see form  
PCT/ISA/210

Authorized Officer

van Voorst, Frank



PATENT

REEL: 035273 FRAME: 0907

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/EP2012/068630

**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(s)).
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 filed or furnished:
  - a. (means)
    - ☐ on paper
    - ☒ in electronic form
  - b. (time)
    - ☒ in the international application as filed
    - ☐ together with the international application in electronic form
    - ☐ subsequently to this Authority for the purposes of search
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 in 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 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>2, 6, 18, 19</u>
	No: Claims	<u>1, 3, 5, 7, 17, 20-33</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1, 33</u>
Industrial applicability (IA)	Yes: Claims	<u>1, 33</u>
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2012/068630

**Re Item V**

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

Reference is made to the following documents:

- D1 OCHSNER: "Production of *Pseudomonas aeruginosa* rhamnolipid biosurfactants in heterologous hosts",  
APPLIED AND ENVIRONMENTAL MICROBIOLOGY,  
vol. 61, no. 9, 1 January 1995 (1995-01-01), page 3503, XP055005925,  
ISSN: 0099-2240  
cited in the application
- D2 NATIVIDAD CABRERA-VALLADARES ET AL: "Monorhamnolipids and 3-(3-hydroxyalkanoyloxy)alkanoic acids (HAAs) production using *Escherichia coli* as a heterologous host",  
APPLIED MICROBIOLOGY AND BIOTECHNOLOGY, SPRINGER, BERLIN, DE,  
vol. 73, no. 1, 8 June 2006 (2006-06-08), pages 187-194, XP019441725,  
ISSN: 1432-0614, DOI: 10.1007/S00253-006-0468-5
- D3 JEIRY TORIBIO ET AL: "Rhamnolipids: Production in bacteria other than *Pseudomonas aeruginosa*",  
EUROPEAN JOURNAL OF LIPID SCIENCE AND TECHNOLOGY,  
vol. 112, no. 10, 20 July 2010 (2010-07-20), pages 1082-1087,  
XP055020025,  
ISSN: 1438-7697, DOI: 10.1002/ejlt.200900256
- D4 CHOI M H ET AL: "Metabolic relationship between polyhydroxyalkanoic acid and rhamnolipid synthesis in *Pseudomonas aeruginosa*: Comparative <sup>13</sup>C NMR analysis of the products in wild-type and mutants",  
JOURNAL OF BIOTECHNOLOGY, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL,  
vol. 151, no. 1, 10 January 2011 (2011-01-10), pages 30-42,  
XP027578398,  
ISSN: 0168-1656  
[retrieved on 2010-12-29]  
cited in the application

**1 Novelty (Art 33(2) PCT)**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/EP2012/068630

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 filed or furnished:
  - a. (means)
    - ☐ on paper
    - ☒ in electronic form
  - b. (time)
    - ☒ in the international application as filed
    - ☐ together with the international application in electronic form
    - ☐ subsequently to this Authority for the purposes of search
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 in 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 43b/s.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>2, 6, 16, 19</u>
	No: Claims	<u>1, 3-5, 7-17, 20-32</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-33</u>
Industrial applicability (IA)	Yes: Claims	<u>1-33</u>
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2012/068630

- 1.1 Document D1 discloses the production of *Pseudomonas aeruginosa* rhamnolipid biosurfactants in heterologous hosts (abstract). D1 discloses *Pseudomonas putida* KT2442 harboring promoterless rhlAB genes fused to the tac promoter on a plasmid and rhamnolipid synthesis using said strain (abstract). D1 further discloses *Pseudomonas fluorescens* and *Escherichia coli* harboring the rhlAB construct (abstract). D1 anticipates the subject matter of claims 1, 3, 4, 7-17, 20, 23-32.
- 1.2 *E. coli* is not able to produce poly (3-hydroxyalkanoates). D1 anticipates the subject matter of claim 5.
- 1.3 The fatty acid part of the rhamnolipid comprises 3-hydroxydecanoyl-3-hydroxydecanoate (page 3504, column 2, lines 4-7). D1 anticipates the subject matter of claims 21 and 22.
- 1.4 Claim 33 is a product-by-process claim and is, hence, a claim for the product per se irrespective of the method for obtaining said product. Since the method for producing the rhamnolipids according to claim 23 is disclosed in D1, the product produced by said method is considered to fall within the scope of claim 33.
- 1.5 Document D2 discloses monorhamnolipids and 3-(3-hydroxyalkanoxyloxy) alkanoic acids (HAAs) production using *Escherichia coli* as a heterologous host (abstract). D2 discloses *E. coli* expressing the *P. aeruginosa* rhlAB operon (page 187, column 1). The fatty acid dimer moiety of rhamnolipids have the same chain length as those produced by *P. aeruginosa* (page 187, column 1). Rhamnolipids were produced at 37 °C (table 2). D2 anticipates the subject matter of claims 1, 3-5, 8, 9, 12, 13-17, 20-33.
- 1.6 The present application does not meet the requirements of Article 33(1) PCT because the subject matter of claims 1, 3-5, 7-17, 20-33, is not new in the sense of Article 33(2) PCT.
- 2 Inventive Step (Art 33(3) PCT)**
  - 2.1 Claims 2, 18 and 19 differ from closest prior art documents D1 and D2 in that the cell further comprises a rhlC gene.
  - 2.2 There is no further technical effect associated with this difference.
  - 2.3 The objective technical problem solved by the subject matter of claims 2, 18 and 19 is therefore considered to be the provision of an alternative strain for the production of rhamnolipids and the solution as a strain further comprising the rhlC gene. Said solution is obvious.



WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)

International application No.

PCT/EP2012/068630

- 2.4 Document D3 reviews the production of rhamnolipids in bacteria other than *Pseudomonas aeruginosa* (abstract). D3 discloses the use of *Burkholderia* rhlA, rhlB and rhlC gene cluster for heterologous expression in non-pathogenic bacteria is an unexplored possibility which remains to be tested (page 1086). Hence, the skilled person reading D3 would construct such a strain in order to test this possibility and arrive at the subject matter of claim 2 without the use of inventive skill.
- 2.5 Claim 6 differs from the closest prior art documents D1 and D2 in that the host cell has a knock-out mutation in an endogenous sequence encoding poly(3-hydroxyalkanoic acid) synthase 1.
- 2.6 There is no further technical effect associated with this difference.
- 2.7 The objective technical problem solved by the subject matter of claim 2 is therefore considered to be the provision of an alternative strain for the production of rhamnolipids and the solution as a strain further comprising a knock-out mutation in an endogenous sequence encoding poly(3-hydroxyalkanoic acid) synthase 1. Said solution is obvious.
- 2.8 Document D4 discloses: "higher PHA accumulation was found in the rhamnolipid-negative mutants than in the wild-type strains, suggesting that 3-hydroxyfatty acid precursors become more available for PHA synthesis when rhamnolipids synthesis is absent. However, compared to the wild-type strains, rhamnolipids production was not enhanced in the four pha mutants of *P. aeruginosa* PA14 and PAO1 which indicates that rhamnolipids production in *P. aeruginosa* could be tightly regulated at the transcriptional level by a quorum sensing response (abstract). The skilled person would understand that uncoupling the rhamnolipid synthesis from quorum sensing such as done in D1 and D2 might solve this problem and test this possibility without the use of inventive skill.
- 2.9 The present application does not meet the requirements of Article 33(1) PCT because the subject matter of claims 1-33 does not involve an Inventive Step in the sense of Article 33(3) PCT.

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Possible steps after receipt of the international search report (ISR) and written opinion of the International Searching Authority (WO-ISA)

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General information

For all international applications filed on or after 01/01/2004 the competent ISA will establish an ISR. It is accompanied by the WO-ISA. Unlike the former written opinion of the IPEA (Rule 66.2 PCT), the WO-ISA is not meant to be responded to, but to be taken into consideration for further procedural steps. This document explains about the possibilities.

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Amending claims under Art. 19 PCT

Within 2 months after the date of mailing of the ISR and the WO-ISA the applicant may file amended claims under Art. 19 PCT directly with the International Bureau of WIPO. The PCT reform of 2004 did not change this procedure. For further information please see Rule 46 PCT as well as form PCT/ISA/220 and the corresponding Notes to form PCT/ISA/220.

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Filing a demand for international preliminary examination

In principle, the WO-ISA will be considered as the written opinion of the IPEA. This should, in many cases, make it unnecessary to file a demand for international preliminary examination. If the applicant nevertheless wishes to file a demand this must be done before expiry of 3 months after the date of mailing of the ISR/WO-ISA or 22 months after priority date, whichever expires later (Rule 54bis PCT). Amendments under Art. 34 PCT can be filed with the IPEA as before, normally at the same time as filing the demand (Rule 66.1 (b) PCT).

If a demand for international preliminary examination is filed and no comments/amendments have been received the WO-ISA will be transformed by the IPEA into an IPRP (International Preliminary Report on Patentability) which would merely reflect the content of the WO-ISA. The demand can still be withdrawn (Art. 37 PCT).

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Filing informal comments

After receipt of the ISR/WO-ISA the applicant may file informal comments on the WO-ISA directly with the International Bureau of WIPO. These will be communicated to the designated Offices together with the IPRP (International Preliminary Report on Patentability) at 30 months from the priority date. Please also refer to the next box.

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End of the international phase

At the end of the international phase the International Bureau of WIPO will transform the WO-ISA or, if a demand was filed, the written opinion of the IPEA into the IPRP, which will then be transmitted together with possible informal comments to the designated Offices. The IPRP replaces the former IPEA (international preliminary examination report).

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Relevant PCT Rules and more information

Rule 43 PCT, Rule 43bis PCT, Rule 44 PCT, Rule 44bis PCT, PCT Newsletter 12/2003, OJ 11/2003, OJ 12/2003