

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5904124

|                                                                                                                                                                                                 |                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <b>SUBMISSION TYPE:</b>                                                                                                                                                                         | NEW ASSIGNMENT                    |
| <b>NATURE OF CONVEYANCE:</b>                                                                                                                                                                    | ASSIGNMENT                        |
| <b>CONVEYING PARTY DATA</b>                                                                                                                                                                     |                                   |
| <b>Name</b>                                                                                                                                                                                     | <b>Execution Date</b>             |
| ANGELA MARGARET PATTERSON                                                                                                                                                                       | 07/16/2016                        |
| GEORGE GRANT                                                                                                                                                                                    | 07/21/2016                        |
| IMKE MULDER                                                                                                                                                                                     | 07/21/2016                        |
| <b>RECEIVING PARTY DATA</b>                                                                                                                                                                     |                                   |
| <b>Name:</b>                                                                                                                                                                                    | 4D PHARMA RESEARCH LIMITED        |
| <b>Street Address:</b>                                                                                                                                                                          | LIFE SCIENCES INNOVATION BUILDING |
| <b>Internal Address:</b>                                                                                                                                                                        | CORNHILL ROAD                     |
| <b>City:</b>                                                                                                                                                                                    | ABERDEEN                          |
| <b>State/Country:</b>                                                                                                                                                                           | UNITED KINGDOM                    |
| <b>Postal Code:</b>                                                                                                                                                                             | AB25 2ZS                          |
| <b>PROPERTY NUMBERS Total: 1</b>                                                                                                                                                                |                                   |
| <b>Property Type</b>                                                                                                                                                                            | <b>Number</b>                     |
| Application Number:                                                                                                                                                                             | 16247834                          |
| <b>CORRESPONDENCE DATA</b>                                                                                                                                                                      |                                   |
| <b>Fax Number:</b>                                                                                                                                                                              | (650)493-6811                     |
| <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>                                                                                                                                                                                   | 6504939300                        |
| <b>Email:</b>                                                                                                                                                                                   | rrsmith@wsgr.com                  |
| <b>Correspondent Name:</b>                                                                                                                                                                      | WILSON SONSINI GOODRICH & ROSATI  |
| <b>Address Line 1:</b>                                                                                                                                                                          | 650 PAGE MILL ROAD                |
| <b>Address Line 4:</b>                                                                                                                                                                          | PALO ALTO, CALIFORNIA 94304       |
| <b>ATTORNEY DOCKET NUMBER:</b>                                                                                                                                                                  | 56708-719.302                     |
| <b>NAME OF SUBMITTER:</b>                                                                                                                                                                       | DAVID MATA                        |
| <b>SIGNATURE:</b>                                                                                                                                                                               | /David Mata/                      |
| <b>DATE SIGNED:</b>                                                                                                                                                                             | 01/10/2020                        |
| <b>Total Attachments: 26</b>                                                                                                                                                                    |                                   |
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## CONFIRMATORY PATENT ASSIGNMENT DEED

### PARTIES:

- (1) **GEORGE GRANT** of Life Sciences Innovation Building, Cornhill Road, Aberdeen AB25 2ZS, United Kingdom ("**INVENTOR**")
- (2) **4D PHARMA RESEARCH LIMITED (formerly GT Biologics Limited)** (registered in Scotland with company number SC336222) of Life Sciences Innovation Building, Cornhill Road, Aberdeen, AB25 2ZS, United Kingdom ("**ASSIGNEE**")

### RECITALS:

- A. The **INVENTOR** is the inventor or one of the inventors in respect of the invention(s) (the "**INVENTION**") which is the subject of the patent application(s) identified in the Schedule (the "**APPLICATION**").
- B. The **INVENTOR**'s contribution to the **INVENTION** was made during the course of the **INVENTOR**'s normal duties as an employee of the **ASSIGNEE** and in circumstances such that, as between the **INVENTOR** and the **ASSIGNEE**, all rights in the **INVENTION** have been taken to be owned by the **ASSIGNEE**.
- C. The **ASSIGNEE** has filed or wishes to file a patent application(s) in respect of the **INVENTION** (the "**APPLICATION**") in its own name, which the **INVENTOR** accepts that the **ASSIGNEE** is fully entitled to do.
- D. For the avoidance of doubt and so as to confirm the **ASSIGNEE**'s legal title to the same, the parties have agreed to execute this Agreement for the purpose of ensuring that all rights in the **INVENTION** (including the **APPLICATION** and all other intellectual property rights) are vested in the **ASSIGNEE**.

### OPERATIVE TERMS:

In consideration of the sum of £1 (one pound sterling) paid by the **ASSIGNEE** to the **INVENTOR** (the receipt and sufficiency of which is hereby acknowledged) IT IS AGREED as follows:

#### 1. Assignment

1.1 The **INVENTOR** hereby confirms the assignment to the **ASSIGNEE** and the **ASSIGNEE** hereby confirms its acceptance of all the **INVENTOR**'s intellectual property right title and interest in and to the **APPLICATION** for all designated states including without limitation:

- (a) the **APPLICATION** and all patent applications and patents which may now or in the future derive or claim priority from any thereof or otherwise relate in whole or in part to the **INVENTION** including all divisionals, continuations, continuations-in-part, reissues, extensions, supplementary protection certificates, renewals and registrations in relation to any thereof and all and any other rights in the **INVENTION** (the "**PATENT RIGHTS**"), including the right to apply for any of the same;
- (b) the benefit of all priority rights;
- (c) the right to seek and obtain registrations in other countries;
- (d) all other intellectual property rights and know-how including without limitation any copyrights and design rights (whether or not registrable) relating in any way to the **INVENTION**;
- (e) the right to sue for and obtain injunctive relief, damages and all other relief in respect of any infringement or misuse (whether past present or future) of any of the rights hereby transferred.

1.2 The **INVENTOR** confirms that the **INVENTOR**'s contribution to the **INVENTION** was made in the circumstances set out in Recital B and that the **ASSIGNEE** has accordingly at all relevant times been the owner of all the **INVENTOR**'s rights in the **INVENTION**, including being entitled to file the **APPLICATION** and any other applications included in the **PATENT RIGHTS** in the name of the **ASSIGNEE** or permit a third party to file any of the same in its own name and to transfer any rights in the **INVENTION** and/or the **PATENT RIGHTS** to any third party without reference to the **INVENTOR**.

#### 2. Covenants

The **INVENTOR** covenants with the **ASSIGNEE** as follows:

- (a) that the INVENTOR has not done or omitted to do any act or thing whatsoever whereby any patents or other intellectual property rights relating to the INVENTION might be invalidated or otherwise prejudicially affected or the due performance of this Agreement hindered or prevented;
- (b) that the INVENTOR has not given any permission to any third party to use the INVENTION and has not otherwise assigned or granted to any third party any rights in or under the INVENTION (including the PATENT RIGHTS)
- (c) that the INVENTOR is not aware of any infringement or unauthorised use of any of the rights confirmed in, transferred or intended to be transferred to the ASSIGNEE under this Agreement.

### 3. Further Assurance

3.1 The INVENTOR undertakes at the ASSIGNEE's expense to execute any further documents and do all things which the ASSIGNEE may reasonably require in order to ensure the vesting in the ASSIGNEE (or the ASSIGNEE's successors in title or nominees as the case may be) of all property rights title and interests intended to be confirmed in, assigned transferred or granted to the ASSIGNEE hereunder (including the PATENT RIGHTS) and to give the ASSIGNEE the full benefit of this Agreement including doing all acts which may be necessary or desirable in connection with:

- (a) the filing and prosecution of any of the PATENT RIGHTS anywhere in the world and obtaining grant in relation thereto;
- (b) protecting and enforcing the PATENT RIGHTS and other intellectual property rights relating to the INVENTION;
- (c) recording any PATENT RIGHTS in the name of the ASSIGNEE or the ASSIGNEE's successors in title or nominees as sole applicant or registered proprietor as the case may be;
- (d) assisting in the resolution of any question concerning the INVENTION or any of the PATENT RIGHTS.

3.2 The INVENTOR hereby authorises the officers from time to time of the ASSIGNEE and the ASSIGNEE's agents to do or authorise the doing of all such acts (including the signing of all such documents) on behalf of the INVENTOR as the ASSIGNEE may consider appropriate for the purpose of giving effect to the provisions of clause 3.1, including but not limited to the annotation of this Agreement with any reference information regarding any of the PATENT RIGHTS as may be required by any relevant Patent Office.

### 3. Law

This Agreement shall be governed by and construed and take effect in accordance with the laws of England and the parties hereby submit to the exclusive jurisdiction of the Courts of England.

IN WITNESS of which the parties have executed and delivered this Agreement as a Deed (in the case of the ASSIGNEE by authorised signatories) as of the date of the last signature.

## SCHEDULE – THE INVENTION(s)

## 1) Immune Modulation

| Country   | Application No.   | Filing Date | Status    |
|-----------|-------------------|-------------|-----------|
| GB        | 1423084.1         | 23.12.14    | Abandoned |
| PCT       | PCT/GB2015/054112 | 22.12.15    | Pending   |
| Argentina | 20150104271       | 22.12.15    | Pending   |
| Taiwan    | 104143468         | 23.12.15    | Pending   |
| Venezuela | 2015001050        | 22.12.15    | Pending   |

EXECUTED and DELIVERED as a DEED by the  
INVENTOR:

Signature: George Grant

George GRANT

Date: 21 July 2016

Witness Signature: [Signature]

Witness Name: ADRIAN MURRAY

Witness Address: ROBERT MURRAY

30 CROWN PLACE  
60EL STREET, LONDON  
EC2A 4ES, UNITED  
KINGDOM

EXECUTED and DELIVERED as a DEED by the  
ASSIGNEE:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: Director

Date: \_\_\_\_\_

Witness Signature: \_\_\_\_\_

Witness Name: \_\_\_\_\_

Witness Address: \_\_\_\_\_

## CONFIRMATORY PATENT ASSIGNMENT DEED

### PARTIES:

- (1) **GEORGE GRANT** of Life Sciences Innovation Building, Cornhill Road, Aberdeen AB25 2ZS, United Kingdom ("**INVENTOR**")
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- B. The **INVENTOR**'s contribution to the **INVENTION** was made during the course of the **INVENTOR**'s normal duties as an employee of the **ASSIGNEE** and in circumstances such that, as between the **INVENTOR** and the **ASSIGNEE**, all rights in the **INVENTION** have been taken to be owned by the **ASSIGNEE**.
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- D. For the avoidance of doubt and so as to confirm the **ASSIGNEE**'s legal title to the same, the parties have agreed to execute this Agreement for the purpose of ensuring that all rights in the **INVENTION** (including the **APPLICATION** and all other intellectual property rights) are vested in the **ASSIGNEE**.

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- (c) the right to seek and obtain registrations in other countries;
- (d) all other intellectual property rights and know-how including without limitation any copyrights and design rights (whether or not registrable) relating in any way to the **INVENTION**;
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EXECUTED and DELIVERED as a DEED by the  
INVENTOR:

Signature: \_\_\_\_\_

George GRANT

Date: \_\_\_\_\_

Witness Signature: \_\_\_\_\_

Witness Name: \_\_\_\_\_

Witness Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

EXECUTED and DELIVERED as a DEED by the  
ASSIGNEE:

ACTING BY

Signature: \_\_\_\_\_

Name: Alexander Stevenson

Title: Director

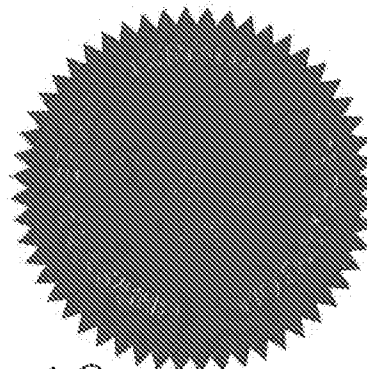
Date: 12-9-17-2016

Witness Signature: \_\_\_\_\_

Witness Name: CHRISTOPHER ATKINSON  
NOTARY PUBLIC

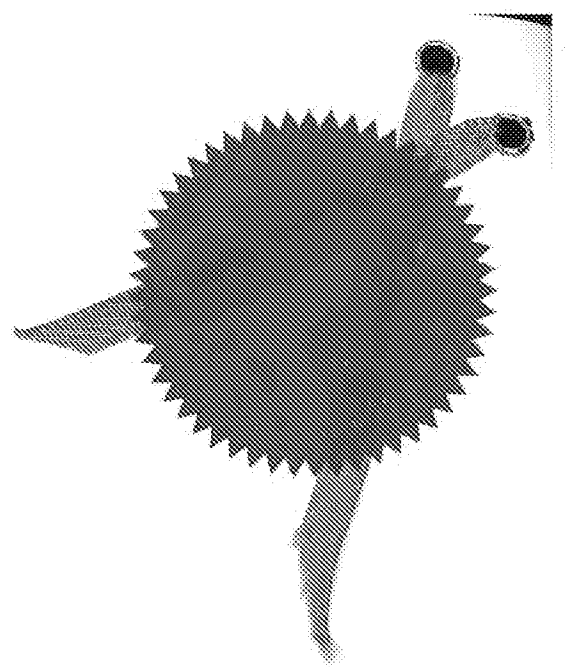
Witness Address: \_\_\_\_\_

Suite 87.3  
Joseph's Walk  
Park Lane  
Leeds  
West Yorkshire  
LS3 1AB  
T: 0113 382 4862  
M: 0771 580 8747  
H: 01758 710237  
E: christopher.atkinson1@virgin.net  
W: www.stikinsonnotary.com



never done

12-9-17-2016



PATENT  
REEL: 053636 FRAME: 0233

## CONFIRMATORY PATENT ASSIGNMENT DEED

### PARTIES:

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**IN WITNESS** of which the parties have executed and delivered this Agreement as a Deed (in the case of the ASSIGNEE by authorised signatories) as of the date of the last signature.

## SCHEDULE – THE INVENTION(s)

## 1) Bacterium for use as a probiotic for nutritional and medical applications

| Country         | Application No.   | Filing Date | Status    |
|-----------------|-------------------|-------------|-----------|
| GB              | 1117313.5         | 07.10.11    | Abandoned |
| PCT             | PCT/GB2012/052495 | 08.10.12    | Completed |
| Australia       | 2012320255        | 08.10.12    | Pending   |
| Brazil          | BR112014008044-5  | 08.10.12    | Pending   |
| Canada          | 2850000           | 08.10.12    | Pending   |
| China           | 201280054515.9    | 08.10.12    | Pending   |
| European        | 12775538.7        | 08.10.12    | Pending   |
| Hong Kong       | 15100681.7        | 21.01.15    | Pending   |
| India           | 3582/DELNP/2014   | 08.10.12    | Pending   |
| Japan           | 2014-533994       | 08.10.12    | Pending   |
| Mexico          | MX/a/2014/004220  | 08.10.12    | Pending   |
| Russia          | 2014118464        | 08.10.12    | Pending   |
| US              | 14/349907         | 08.10.12    | Pending   |
| US continuation | 15/070,605        |             | Pending   |

## 2) Roseburia flagellin and immune modulation

| Country   | Application No.   | Filing Date | Status    |
|-----------|-------------------|-------------|-----------|
| GB        | 1306536.2         | 10.04.13    | Abandoned |
| PCT       | PCT/GB2014/051123 | 10.04.14    | Completed |
| Australia | 2014202021        | 10.04.14    | Pending   |
| Brazil    | BR112015025854-9  | 10.04.14    | Pending   |
| Canada    | 2848725           | 10.04.14    | Pending   |
| China     | 201480033216.6    | 10.04.14    | Pending   |
| European  | 14717823.0        | 10.04.14    | Pending   |
| Hong Kong | 1306536.2         | 10.04.14    | Pending   |
| India     | 9399/DELNP/2015   | 10.04.14    | Pending   |
| Japan     | 2016-507061       | 10.04.14    | Pending   |
| Mexico    | MX/a/2015/014281  | 10.04.14    | Pending   |
| Russia    | 2015147864        | 10.04.14    | Pending   |
| Turkey    | 2014/04161        | 10.04.14    | Pending   |
| US        | 14/249710         | 10.04.14    | Pending   |

## 3) Immune Modulation

| Country   | Application No.   | Filing Date | Status    |
|-----------|-------------------|-------------|-----------|
| GB        | 1423084.1         | 23.12.14    | Abandoned |
| PCT       | PCT/GB2015/054112 | 22.12.15    | Pending   |
| Argentina | 20150104271       | 22.12.15    | Pending   |
| Taiwan    | 104143468         | 23.12.15    | Pending   |
| Venezuela | 2015001050        | 22.12.15    | Pending   |

EXECUTED and DELIVERED as a DEED by the  
INVENTOR:

Signature: I Mulder

Inke MULDER

Date: 21-07-2016

Witness Signature: [Signature]

Witness Name: GILLIAN MURPHY

Witness Address: PO BOX 11005

20 CROWN PLACE,

CARL STREET, LONDON

UNITED KINGDOM

EC2A 4ES

EXECUTED and DELIVERED as a DEED by the  
ASSIGNEE:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: Director

Date: \_\_\_\_\_

Witness Signature: \_\_\_\_\_

Witness Name: \_\_\_\_\_

Witness Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## CONFIRMATORY PATENT ASSIGNMENT DEED

### PARTIES:

- (1) **IMKE MULDER** of Life Science Innovation Building, Cornhill Road, Aberdeen, AB25 2ZS, United Kingdom ("**INVENTOR**")
- (2) **4D PHARMA RESEARCH LIMITED (formerly GT Biologics Limited)** (registered in Scotland with company number SC336222) of Life Sciences Innovation Building, Cornhill Road, Aberdeen, AB25 2ZS, United Kingdom ("**ASSIGNEE**")

### RECITALS:

- A. The **INVENTOR** is the inventor or one of the inventors in respect of the invention(s) (the "**INVENTION**") which is the subject of the patent application(s) identified in the Schedule (the "**APPLICATION**").
- B. The **INVENTOR**'s contribution to the **INVENTION** was made during the course of the **INVENTOR**'s normal duties as an employee of the **ASSIGNEE** and in circumstances such that, as between the **INVENTOR** and the **ASSIGNEE**, all rights in the **INVENTION** have been taken to be owned by the **ASSIGNEE**.
- C. The **ASSIGNEE** has filed or wishes to file a patent application(s) in respect of the **INVENTION** (the "**APPLICATION**") in its own name, which the **INVENTOR** accepts that the **ASSIGNEE** is fully entitled to do.
- D. For the avoidance of doubt and so as to confirm the **ASSIGNEE**'s legal title to the same, the parties have agreed to execute this Agreement for the purpose of ensuring that all rights in the **INVENTION** (including the **APPLICATION** and all other intellectual property rights) are vested in the **ASSIGNEE**.

### OPERATIVE TERMS:

In consideration of the sum of £1 (one pound sterling) paid by the **ASSIGNEE** to the **INVENTOR** (the receipt and sufficiency of which is hereby acknowledged) IT IS AGREED as follows:

#### 1. Assignment

- 1.1 The **INVENTOR** hereby confirms the assignment to the **ASSIGNEE** and the **ASSIGNEE** hereby confirms its acceptance of all the **INVENTOR**'s intellectual property right title and interest in and to the **APPLICATION** for all designated states including without limitation:

- (a) the **APPLICATION** and all patent applications and patents which may now or in the future derive or claim priority from any thereof or otherwise relate in whole or in part to the **INVENTION** including all divisionals, continuations, continuations-in-part, reissues, extensions, supplementary protection certificates, renewals and registrations in relation to any thereof and all and any other rights in the **INVENTION** (the "**PATENT RIGHTS**"), including the right to apply for any of the same;
- (b) the benefit of all priority rights;
- (c) the right to seek and obtain registrations in other countries;
- (d) all other intellectual property rights and know-how including without limitation any copyrights and design rights (whether or not registrable) relating in any way to the **INVENTION**;
- (e) the right to sue for and obtain injunctive relief, damages and all other relief in respect of any infringement or misuse (whether past present or future) of any of the rights hereby transferred.

- 1.2 The **INVENTOR** confirms that the **INVENTOR**'s contribution to the **INVENTION** was made in the circumstances set out in Recital B and that the **ASSIGNEE** has accordingly at all relevant times been the owner of all the **INVENTOR**'s rights in the **INVENTION**, including being entitled to file the **APPLICATION** and any other applications included in the **PATENT RIGHTS** in the name of the **ASSIGNEE** or permit a third party to file any of the same in its own name and to transfer any rights in the **INVENTION** and/or the **PATENT RIGHTS** to any third party without reference to the **INVENTOR**.

#### 2. Covenants

The **INVENTOR** covenants with the **ASSIGNEE** as follows:

- (a) that the INVENTOR has not done or omitted to do any act or thing whatsoever whereby any patents or other intellectual property rights relating to the INVENTION might be invalidated or otherwise prejudicially affected or the due performance of this Agreement hindered or prevented;
- (b) that the INVENTOR has not given any permission to any third party to use the INVENTION and has not otherwise assigned or granted to any third party any rights in or under the INVENTION (including the PATENT RIGHTS)
- (c) that the INVENTOR is not aware of any infringement or unauthorised use of any of the rights confirmed in, transferred or intended to be transferred to the ASSIGNEE under this Agreement.

### 3. Further Assurance

3.1 The INVENTOR undertakes at the ASSIGNEE's expense to execute any further documents and do all things which the ASSIGNEE may reasonably require in order to ensure the vesting in the ASSIGNEE (or the ASSIGNEE's successors in title or nominees as the case may be) of all property rights title and interests intended to be confirmed in, assigned transferred or granted to the ASSIGNEE hereunder (including the PATENT RIGHTS) and to give the ASSIGNEE the full benefit of this Agreement including doing all acts which may be necessary or desirable in connection with:

- (a) the filing and prosecution of any of the PATENT RIGHTS anywhere in the world and obtaining grant in relation thereto;
- (b) protecting and enforcing the PATENT RIGHTS and other intellectual property rights relating to the INVENTION;
- (c) recording any PATENT RIGHTS in the name of the ASSIGNEE or the ASSIGNEE's successors in title or nominees as sole applicant or registered proprietor as the case may be;
- (d) assisting in the resolution of any question concerning the INVENTION or any of the PATENT RIGHTS.

3.2 The INVENTOR hereby authorises the officers from time to time of the ASSIGNEE and the ASSIGNEE's agents to do or authorise the doing of all such acts (including the signing of all such documents) on behalf of the INVENTOR as the ASSIGNEE may consider appropriate for the purpose of giving effect to the provisions of clause 3.1, including but not limited to the annotation of this Agreement with any reference information regarding any of the PATENT RIGHTS as may be required by any relevant Patent Office.

### 3. Law

This Agreement shall be governed by and construed and take effect in accordance with the laws of England and the parties hereby submit to the exclusive jurisdiction of the Courts of England.

IN WITNESS of which the parties have executed and delivered this Agreement as a Deed (in the case of the ASSIGNEE by authorised signatories) as of the date of the last signature.

## SCHEDULE - THE INVENTION(s)

## 1) Bacterium for use as a probiotic for nutritional and medical applications

| Country         | Application No.   | Filing Date | Status    |
|-----------------|-------------------|-------------|-----------|
| GB              | 1117313.5         | 07.10.11    | Abandoned |
| PCT             | PCT/GB2012/052495 | 08.10.12    | Completed |
| Australia       | 2012320255        | 08.10.12    | Pending   |
| Brazil          | BR112014008044-5  | 08.10.12    | Pending   |
| Canada          | 2850000           | 08.10.12    | Pending   |
| China           | 201280054515.9    | 08.10.12    | Pending   |
| European        | 12775538.7        | 08.10.12    | Pending   |
| Hong Kong       | 15100681.7        | 21.01.15    | Pending   |
| India           | 3582/DELNP/2014   | 08.10.12    | Pending   |
| Japan           | 2014-533994       | 08.10.12    | Pending   |
| Mexico          | MX/a/2014/004220  | 08.10.12    | Pending   |
| Russia          | 2014118464        | 08.10.12    | Pending   |
| US              | 14/349907         | 08.10.12    | Pending   |
| US continuation | 15/070,605        |             | Pending   |

## 2) Roseburia flagellin and immune modulation

| Country   | Application No.   | Filing Date | Status    |
|-----------|-------------------|-------------|-----------|
| GB        | 1306536.2         | 10.04.13    | Abandoned |
| PCT       | PCT/GB2014/051123 | 10.04.14    | Completed |
| Australia | 2014202021        | 10.04.14    | Pending   |
| Brazil    | BR112015025854-9  | 10.04.14    | Pending   |
| Canada    | 2848725           | 10.04.14    | Pending   |
| China     | 201480033216.6    | 10.04.14    | Pending   |
| European  | 14717823.0        | 10.04.14    | Pending   |
| Hong Kong | 1306536.2         | 10.04.14    | Pending   |
| India     | 9399/DELNP/2015   | 10.04.14    | Pending   |
| Japan     | 2016-507061       | 10.04.14    | Pending   |
| Mexico    | MX/a/2015/014281  | 10.04.14    | Pending   |
| Russia    | 2015147864        | 10.04.14    | Pending   |
| Turkey    | 2014/04161        | 10.04.14    | Pending   |
| US        | 14/249710         | 10.04.14    | Pending   |

## 3) Immune Modulation

| Country   | Application No.   | Filing Date | Status    |
|-----------|-------------------|-------------|-----------|
| GB        | 1423084.1         | 23.12.14    | Abandoned |
| PCT       | PCT/GB2015/054112 | 22.12.15    | Pending   |
| Argentina | 20150104271       | 22.12.15    | Pending   |
| Taiwan    | 104143468         | 23.12.15    | Pending   |
| Venezuela | 2015001050        | 22.12.15    | Pending   |

EXECUTED and DELIVERED as a DEED by the  
INVENTOR:

Signature: \_\_\_\_\_

Imke MULDER

Date: \_\_\_\_\_

Witness Signature: \_\_\_\_\_

Witness Name: \_\_\_\_\_

Witness Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

EXECUTED and DELIVERED as a DEED by the  
ASSIGNEE:

ACTING BY

Signature: Alexander

Name: Alexander Stevenson

Title: Director

Date: 12 July 2016

Witness Signature: Christopher Atkinson

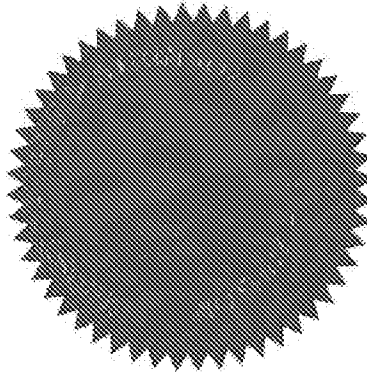
Witness Name: CHRISTOPHER ATKINSON  
NOTARY PUBLIC

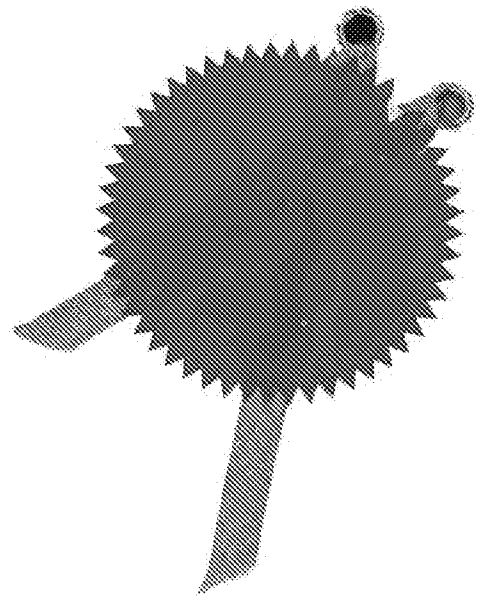
Witness Address: \_\_\_\_\_

Suite 67.2  
Joseph's Well  
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Leeds  
West Yorkshire  
LS3 1AB

T: 0113 386 4862  
M: 0771 560 8747  
H: 01756 710237  
E: christopher.atkinson1@virgin.net  
W: www.atkinsonnotary.com

notary Public  
12/7/16





PATENT  
REEL: 053636 FRAME: 0288

## CONFIRMATORY PATENT ASSIGNMENT DEED

### PARTIES:

- (1) **ANGELA MARGARET PATTERSON** of Norwich Medical School, Faculty of Medicine and Health Sciences, University of East Anglia, Norwich NR4 7JT, United Kingdom (formerly of Life Sciences Innovation Building, Cornhill Road, Aberdeen AB25 2ZS, United Kingdom) ("**INVENTOR**")
- (2) **4D PHARMA RESEARCH LIMITED (formerly GT Biologics Limited)** (registered in Scotland with company number SC336222) of Life Sciences Innovation Building, Cornhill Road, Aberdeen, AB25 2ZS ("**ASSIGNEE**")

### RECITALS:

- A. The **INVENTOR** is the inventor or one of the inventors in respect of the invention(s) (the "**INVENTION**") which is the subject of the patent application(s) identified in the Schedule (the "**APPLICATION**").
- B. The **INVENTOR**'s contribution to the **INVENTION** was made during the course of the **INVENTOR**'s normal duties as an employee of the **ASSIGNEE** and in circumstances such that, as between the **INVENTOR** and the **ASSIGNEE**, all rights in the **INVENTION** have been taken to be owned by the **ASSIGNEE**.
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#### 2. Covenants

The INVENTOR covenants with the ASSIGNEE as follows:

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## SCHEDULE – THE INVENTION(s)

## 1) Roseburia flagellin and immune modulation

| Country   | Application No.   | Filing Date | Status    |
|-----------|-------------------|-------------|-----------|
| GB        | 1306536.2         | 10.04.13    | Abandoned |
| PCT       | PCT/GB2014/051123 | 10.04.14    | Completed |
| Australia | 2014202021        | 10.04.14    | Pending   |
| Brazil    | BR112015025854-9  | 10.04.14    | Pending   |
| Canada    | 2848725           | 10.04.14    | Pending   |
| China     | 201480033216.6    | 10.04.14    | Pending   |
| European  | 14717823.0        | 10.04.14    | Pending   |
| Hong Kong | 1306536.2         | 10.04.14    | Pending   |
| India     | 9399/DELNP/2015   | 10.04.14    | Pending   |
| Japan     | 2016-507061       | 10.04.14    | Pending   |
| Mexico    | MX/a/2015/014281  | 10.04.14    | Pending   |
| Russia    | 2015147864        | 10.04.14    | Pending   |
| Turkey    | 2014/04161        | 10.04.14    | Pending   |
| US        | 14/249710         | 10.04.14    | Pending   |

## 2) Immune Modulation

| Country   | Application No.   | Filing Date | Status    |
|-----------|-------------------|-------------|-----------|
| GB        | 1423084.1         | 23.12.14    | Abandoned |
| PCT       | PCT/GB2015/054112 | 22.12.15    | Pending   |
| Argentina | 20150104271       | 22.12.15    | Pending   |
| Taiwan    | 104143468         | 23.12.15    | Pending   |
| Venezuela | 2015001050        | 22.12.15    | Pending   |

EXECUTED and DELIVERED as a DEED by the  
INVENTOR:

Signature: Angela M. Patterson

Angela Margaret PATTERSON

Date: 19 July 2016

Witness Signature: [Signature]

Witness Name: MERLIN BATCHELOR

Witness Address: Notary Express Ltd  
27 Chalk Hill Road  
Norwich, NR1 1SL  
U.K.

Protocol 017309 Destination UK.

EXECUTED and DELIVERED as a DEED by the  
ASSIGNEE:

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: Director

Date: \_\_\_\_\_

Witness Signature: \_\_\_\_\_

Witness Name: \_\_\_\_\_

Witness Address: \_\_\_\_\_



## CONFIRMATORY PATENT ASSIGNMENT DEED

### PARTIES:

- (1) **ANGELA MARGARET PATTERSON** of Norwich Medical School, Faculty of Medicine and Health Sciences, University of East Anglia, Norwich NR4 7JT, United Kingdom (formerly of Life Sciences Innovation Building, Cornhill Road, Aberdeen AB25 2ZS, United Kingdom) ("**INVENTOR**")
- (2) **4D PHARMA RESEARCH LIMITED (formerly GT Biologics Limited)** (registered in Scotland with company number SC336222) of Life Sciences Innovation Building, Cornhill Road, Aberdeen, AB25 2ZS ("**ASSIGNEE**")

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- (c) recording any PATENT RIGHTS in the name of the ASSIGNEE or the ASSIGNEE's successors in title or nominees as sole applicant or registered proprietor as the case may be;
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IN WITNESS of which the parties have executed and delivered this Agreement as a Deed (in the case of the ASSIGNEE by authorised signatories) as of the date of the last signature.

# SCHEDULE - THE INVENTION(s)

## 1) Roseburia flagellin and immune modulation

| Country   | Application No.   | Filing Date | Status    |
|-----------|-------------------|-------------|-----------|
| GB        | 1306536.2         | 10.04.13    | Abandoned |
| PCT       | PCT/GB2014/051123 | 10.04.14    | Completed |
| Australia | 2014202021        | 10.04.14    | Pending   |
| Brazil    | BR112015025854-9  | 10.04.14    | Pending   |
| Canada    | 2848725           | 10.04.14    | Pending   |
| China     | 201480033216.6    | 10.04.14    | Pending   |
| European  | 14717823.0        | 10.04.14    | Pending   |
| Hong Kong | 1306536.2         | 10.04.14    | Pending   |
| India     | 9399/DELNP/2015   | 10.04.14    | Pending   |
| Japan     | 2016-507061       | 10.04.14    | Pending   |
| Mexico    | MX/a/2015/014281  | 10.04.14    | Pending   |
| Russia    | 2015147864        | 10.04.14    | Pending   |
| Turkey    | 2014/04161        | 10.04.14    | Pending   |
| US        | 14/249710         | 10.04.14    | Pending   |

## 2) Immune Modulation

| Country   | Application No.   | Filing Date | Status    |
|-----------|-------------------|-------------|-----------|
| GB        | 1423084.1         | 23.12.14    | Abandoned |
| PCT       | PCT/GB2015/054112 | 22.12.15    | Pending   |
| Argentina | 20150104271       | 22.12.15    | Pending   |
| Taiwan    | 104143468         | 23.12.15    | Pending   |
| Venezuela | 2015001050        | 22.12.15    | Pending   |

EXECUTED and DELIVERED as a DEED by the  
INVENTOR:

Signature: \_\_\_\_\_

Angela Margaret PATTERSON

Date: \_\_\_\_\_

Witness Signature: \_\_\_\_\_

Witness Name: \_\_\_\_\_

Witness Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

EXECUTED and DELIVERED as a DEED by the  
ASSIGNEE:

Signature: \_\_\_\_\_

Name: Alexander Stevenson

Title: Director

Date: 12 July 2016

Witness Signature: \_\_\_\_\_

Witness Name: CHRISTOPHER ATKINSON  
NOTARY PUBLIC

Witness Address: \_\_\_\_\_

Suite F2.3  
Joseph's Well  
Park Lane  
Leeds  
West Yorkshire  
LS3 1AB  
T: 0113 380 4862  
M: 0771 560 8747  
H: 01756 710237  
E: [christopher.atkinson1@virgin.net](mailto:christopher.atkinson1@virgin.net)  
W: [www.atkinsonnotary.com](http://www.atkinsonnotary.com)

Angela ABuc  
12 July 2016

