

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT4946550

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
	Name	Execution Date
	OPTIGEN PATENTS LIMITED	07/14/2016
RECEIVING PARTY DATA		
Name:	SPARK THERAPEUTICS IRELAND LIMITED	
Street Address:	PEARSE STREET	
Internal Address:	STUDIO G3, THE TOWER, TRINITY TECHNOLOGY & ENTERPRISE CAMPUS	
City:	DUBLIN	
State/Country:	IRELAND	
Postal Code:	2	
PROPERTY NUMBERS Total: 1		
	Property Type	Number
	Patent Number:	7138378
CORRESPONDENCE DATA		
Fax Number:	(617)646-8646	
<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>		
Phone:	6176468000	
Email:	patents_RoqueE@wolfgreenfield.com	
Correspondent Name:	WOLF GREENFIELD & SACKS, P.C.	
Address Line 1:	600 ATLANTIC AVENUE	
Address Line 4:	BOSTON, MASSACHUSETTS 02210	
ATTORNEY DOCKET NUMBER:	G0785.70003US00	
NAME OF SUBMITTER:	JILL BOURNE	
SIGNATURE:	/Jill Bourne/	
DATE SIGNED:	05/04/2018	
Total Attachments: 33		
source=G078570006US01-ASI-RE#page1.tif		
source=G078570006US01-ASI-RE#page2.tif		
source=G078570006US01-ASI-RE#page3.tif		
source=G078570006US01-ASI-RE#page4.tif		

source=G078570006US01-ASI-RE#page5.tif
source=G078570006US01-ASI-RE#page6.tif
source=G078570006US01-ASI-RE#page7.tif
source=G078570006US01-ASI-RE#page8.tif
source=G078570006US01-ASI-RE#page9.tif
source=G078570006US01-ASI-RE#page10.tif
source=G078570006US01-ASI-RE#page11.tif
source=G078570006US01-ASI-RE#page12.tif
source=G078570006US01-ASI-RE#page13.tif
source=G078570006US01-ASI-RE#page14.tif
source=G078570006US01-ASI-RE#page15.tif
source=G078570006US01-ASI-RE#page16.tif
source=G078570006US01-ASI-RE#page17.tif
source=G078570006US01-ASI-RE#page18.tif
source=G078570006US01-ASI-RE#page19.tif
source=G078570006US01-ASI-RE#page20.tif
source=G078570006US01-ASI-RE#page21.tif
source=G078570006US01-ASI-RE#page22.tif
source=G078570006US01-ASI-RE#page23.tif
source=G078570006US01-ASI-RE#page24.tif
source=G078570006US01-ASI-RE#page25.tif
source=G078570006US01-ASI-RE#page26.tif
source=G078570006US01-ASI-RE#page27.tif
source=G078570006US01-ASI-RE#page28.tif
source=G078570006US01-ASI-RE#page29.tif
source=G078570006US01-ASI-RE#page30.tif
source=G078570006US01-ASI-RE#page31.tif
source=G078570006US01-ASI-RE#page32.tif
source=G078570006US01-ASI-RE#page33.tif

OPTIGEN PATENTS LIMITED

SPARK THERAPEUTICS IRELAND LIMITED

DEED OF ASSIGNMENT

William Fry
Solicitors
2 Grand Canal Square
Dublin 2
www.williamfry.com

© William Fry 2016

023381.0004

THIS ASSIGNMENT is made 14th day of July 2016

BETWEEN:

OPTIGEN PATENTS LIMITED
a company incorporated under
the laws of Ireland
with company number 361468
having its registered offices at
Studio G3, The Tower, Trinity
Technology & Enterprise Campus,
Pearse Street, Dublin 2 (the "Assignor")

- and -

SPARK THERAPEUTICS IRELAND LIMITED
a company incorporated under
the laws of Ireland
with company number 286232
having its registered offices at
Studio G3, The Tower, Trinity
Technology & Enterprise Campus,
Pearse Street, Dublin 2 (the "Assignee")

(Each a "Party" and together the "Parties")

RECITALS:

- A. The Assignor is party to an Intellectual Property Agreement with (i) the Assignee, (ii) Jane Farrar, (iii) Georoid Tucky, (iv) Peter Humphries, (v) Paul Kenna, (vi) Mary O'Reilly, (vii) Sophia Millington-Ward, (viii) Brian O'Neill and (ix) the Provost, Fellows and Scholars of the College of the Holy and Undivided Trinity of Queen Elizabeth near Dublin ("TCD") of 20 January 2003, as amended by an Amendment Agreement between the same parties of 15 April 2003, and as amended by an Amended and Restated Agreement between the same parties of 11 May 2004 (together the "Intellectual Property Agreement").
- B. As part of an internal business reorganisation, the Assignor wishes to transfer the Intellectual Property Agreement to the Assignee. As part of this transfer, and in accordance with the terms of the Intellectual Property Agreement, the Assignor has already procured the consent of all the parties to that Intellectual Property Agreement to the assignment of all of the Assignor's rights, title, interest, benefit, obligations and burdens in and to the Intellectual Property Agreement (the "Consent").
- C. The Assignor has agreed to assign all of its rights referred to at A above to the Assignee and the Assignee agrees to accept all rights and to perform all related obligations pursuant to the Property Agreement on the terms set out in this Deed.

IT IS AGREED:

1. Definitions

1.1 In this Deed the following terms shall have the meanings set out below:

"Consent", the consent of all the applicable parties described at B above, a copy of which is set out in Schedule 2 to this Deed;

"Intellectual Property Agreement", the agreement (as amended) described in Recital A above, copies of which are set out in Schedule 1 to this Deed.

1.2 Interpretation

1.2.1 In this Deed, unless the context otherwise requires:

- (a) any reference to a recital, clause or schedule is to the relevant recital, clause or schedule of or to this Deed;
- (b) the clause headings are included for convenience only and shall not affect the interpretation of this Deed;
- (c) use of the singular includes the plural and vice versa;
- (d) any phrase introduced by the terms "including", "include", "in particular" or any similar expression shall be construed as illustrative and shall not limit the sense of the words preceding these terms.

1.2.2 The Schedules form part of this Deed and shall have effect as if set out in full in the body of this Deed and any references to this Deed includes the Schedules.

2. Assignment of the Intellectual Property Agreement

2.1 In consideration of the mutual promises and undertakings contained in this Deed (the receipt and sufficiency of which the parties now acknowledge) and with immediate effect:

2.1.1 the Assignor now assigns and transfers all of its rights, title, interest, and benefit in and pursuant to the Intellectual Property Agreement to the Assignee; and

2.1.2 the Assignee undertakes to perform all the Assignor's obligations under and be bound by the terms and conditions of the Intellectual Property Agreement in every way.

3. Warranty

The Assignor represents and warrants that it is entitled to enter into this Deed.

4. Further Assurance

At the request and expense of the Assignee, the Assignor shall (and shall procure that any other necessary parties shall) execute and do all such documents, acts and things as may reasonably be required by the Assignee for assuring to, or vesting in, the Assignee (including its nominee or nominees) such right, title and interest that the Assignor may have in and to the Intellectual Property Agreement and generally to give effect to this Deed. The Assignor irrevocably appoints the Assignee to be its attorney to act in its name and on its behalf to execute and do any such instruments and things and generally to use its name for the purpose of giving to the Assignee (or its nominee) the full benefit of this Agreement.

5. Severance

If at any time any one or more of the provisions hereof, or any part thereof, is or becomes invalid, illegal or unenforceable in any respect under any law, the validity, legality and enforceability of the remaining provisions hereof shall not in any way be affected or impaired thereby. It is agreed by the parties that a court of competent jurisdiction may sever any such invalid, illegal or unenforceable provision. The parties agree that should any provision of the Deed be invalid or unenforceable, then they shall forthwith enter into good faith negotiations to amend such provision in such a way that, as amended, it is valid, legal and enforceable and to the maximum extent possible carries out the original intent of the parties as to the matter or matters in question.

6. Counterparts

This Deed may be executed in any number of counterparts and by the different parties on separate counterparts each of which, when executed and delivered, shall constitute an original, all such counterparts together constituting one and the same instrument. The expression "counterpart" shall include any executed copy of this Deed transmitted by facsimile.

7. Waiver

A waiver by any party or parties of any breach of any of the terms, provisions or covenants of this Deed, or the acquiescence of any party or parties in any act (whether of commission or omission) which but for such acquiescence would be a breach as aforesaid, shall not constitute a general waiver of such term, provision or covenant or of any subsequent act contrary thereto. Any liability to any party hereto under the provisions of this Deed may be released, compounded or compromised by such party in his/its absolute discretion as regards any party or parties under such liability without in any way prejudicing his/its rights against any other party or parties under the same or a like liability, whether joint and several or otherwise.

8. Variation

No variation of this Deed shall be effective unless it is in writing and signed by the parties (or their authorised representatives).

9. Governing Law

This Deed shall in all respects (including the formation thereof and performance thereunder) be governed by, and construed in accordance with, the laws of Ireland. The parties to this Deed agree to submit to the exclusive jurisdiction of the courts of Ireland in relation to any disputes or proceedings arising out of or in connection with this Deed.

10. Entire Agreement

This Deed (and those documents referred to herein) represents the entire agreement between the parties with respect to its subject matter. Each of the parties confirms that it has not relied upon any representations not recorded in this document inducing it to enter into this Deed.

IN WITNESS whereof this Deed has been executed as a deed by the parties hereto on the date stated at the beginning of this Deed.

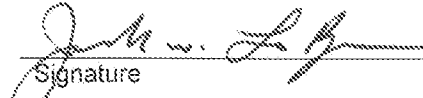
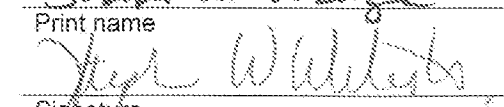
SCHEDULE 1

Intellectual Property Agreement

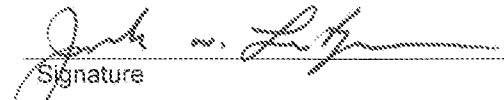
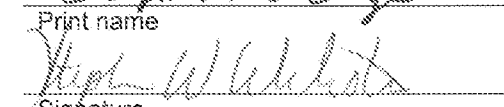
SCHEDULE 2

Consent

GIVEN when the common seal
of OPTIGEN PATENTS LIMITED
and delivered as a deed:


Signature
Joseph W. LaBerge
Print name

Signature
STEPHEN W WEBSTER
Print name

GIVEN when the common seal
of SPARK THERAPEUTICS IRELAND LIMITED
and delivered as a deed:


Signature
Joseph W. LaBerge
Print name

Signature
STEPHEN W WEBSTER
Print name

WF-16946747-3

DATED JANUARY 20TH 2003

- (1) JANE FARRAR
- (2) GEAROID TUOHY
- (3) PETER HUMPHRIES
- (4) PAUL KENNA
- (5) MARY O'REILLY
- (6) SOPHIA MILLINGTON-WARD
- (7) BRIAN O'NEILL
- (8) TRINITY COLLEGE DUBLIN
- (9) OPTIGEN PATENTS LIMITED
- (10) OPTIGEN TECHNOLOGIES LIMITED

INTELLECTUAL PROPERTY AGREEMENT

THIS AGREEMENT is made the 20th day of January 2003

BETWEEN:

- (1) JANE FARRAR of 9 The Crescent, Monkstown, Co. Dublin;
- (2) GEAROID TUOHY of 7 Carriglea Avenue, Carriglea Downs, Dun Laoghaire, Co. Dublin;;
- (3) PETER HUMPHRIES of 5 Holmwood, Brennanstown Road, Foxrock, Co. Dublin;
- (4) PAUL KENNA of 176 New Cabra Road, Dublin 7
- (5) MARY O'REILLY of 5 Proby Hall, Killiney, Co. Dublin;
- (6) SOPHIA MILLINGTON-WARD of 15 De Courcey Square, Glasnevin, Dublin 9;
- (7) BRIAN O'NEILL c/o Department of Genetics, Trinity College Dublin, Dublin 2
- (8) THE PROVOST FELLOWS AND SCHOLARS OF THE COLLEGE OF THE HOLY AND UNDIVIDED TRINITY OF QUEEN ELIZABETH NEAR DUBLIN ("TCD");

(parties (1) to (8) hereinafter referred to as "the Assignors"); and

- (9) OPTIGEN PATENTS LIMITED a company incorporated under the laws of Ireland, having its registered office at the Department of Genetics, Trinity College Dublin ("the Assignee"); and
- (10) OPTIGEN TECHNOLOGIES LIMITED a company incorporated under the laws of Ireland, having its registered office at the Department of Genetics, TCD, Dublin 2 ("Optigen Technologies")

WHEREAS:

- A. The Assignors have been carrying out research and development in relation to the treatment of genetic and infectious diseases in humans, plants and animals.
- B. The Assignors have agreed to assign certain intellectual property relating to this research and development, to the Assignee, on the terms outlined in this Agreement.

NOW IT IS HEREBY AGREED AS FOLLOWS:

1 INTERPRETATION

- 1.1 In this Agreement, unless the context otherwise requires or unless otherwise specified, the following terms shall have the following meanings:

"Assigned IPR" means (a) the Patents, and (b) all improvements and/or modifications and/or continuations-in-part and /or provisionals made to the subject-matter of the Patents prior to the date of this Assignment, and (c) all IPR which has been produced, invented or discovered by or on behalf of any of the Assignors whether alone or with any other person at any time prior to the date of this Agreement, and in the course of the Projects, and which is necessary to exploit (a) and/or (b).

"Assigned Materials" means any and all works of authorship and materials (a) developed, written or prepared by or on behalf of any of the Assignors whether alone or with any other

person at any time prior to the date of this Agreement, and in the course of the Projects, which incorporates any Assigned IPR, including, without limitation, any functional, technical and/or performance specification, any and all reports, studies, data, diagrams, drawings, charts, techniques, processes, algorithms and layouts, and the materials outlined in Schedule 2 hereto (in whatever medium, including without limitation, written or printed, electronic or otherwise, documents, computer discs, floppy discs, CDs, diskettes, tapes or other formats).

"Background IPR" means all IPR owned by, licensed to, or made available by any of the parties prior to the date of this Agreement, for use by any of the other parties, and which is not Assigned IPR, save that in the case of TCD, the term "Background IPR" means all IPR developed to this date by the Ocular Genetics Research Group and which has not been or is not contracted to be solely licensed to third parties.

"Core Products" means all therapeutic medicines excluding Mid-Core Products which (a) have been granted FDA and/or EMEA approval, (b) which have been manufactured, marketed and distributed solely and exclusively by Optigen Technologies, and (c) the manufacture of which falls within the scope of any claim of the Patents. Notwithstanding the generality of the foregoing definition, it is agreed that therapies to address genetic disorders or infectious diseases including *inter alia* Retinitis pigmentosa, Osteogenesis imperfecta and p53 cancers shall be treated as Core Products.

"EMEA" means the European Agency for the Evaluation of Medicinal Products or its authorised agents or successors.

"FDA" means the Food and Drug Administration in the US Department of Health and Human Services or its authorised agents or successors.

"Inventors" means Jane Farrar, Peter Humphries and Paul Kenna.

"IPR" means any and all patents, trade marks, service marks, registered designs, drawings, utility models, design rights, business ideas, concepts, inventions, discoveries, copyright (including the copyright in software in any code), database rights, trade secrets and other confidential information, technical information, technology, know-how, business or trade names, goodwill and all other intellectual property and rights of a similar or corresponding nature in any part of the world, whether registered or not, or capable of registration or not, and including all applications and the right to apply for any of the foregoing rights.

"Mid-Core Products" means therapeutic medicines to be used solely for the treatment of Marfan's syndrome, polycystic kidney disease and Machado-Joseph disease, and (a) which have been granted FDA and EMEA approval, (b) which have been manufactured, marketed and distributed solely and exclusively by Optigen Technologies, and (c) the manufacture of which falls within the scope of any claim of the Patents.

"Optigen Group" means the Assignee and any company which is a subsidiary or holding company or affiliate of the Assignee, or any subsidiary or holding company of any such subsidiary or holding company or affiliate. The term "affiliate" means any company, corporation, or business in which the relevant company owns or controls shares or stock entitling the relevant company to fifty percent (50%) or more of the votes capable of being cast in a poll at any extraordinary general meeting of the company, corporation or business.

"Patents" means the patents and patent applications, details of which are provided at Schedule 1 hereto, together with all rights therein.

"Ocular Genetics Research Group" means those parties (1-7) whose work on molecular genetics in TCD is included in the Assigned and Background IPR of this agreement.

"Projects" means the projects listed in Schedule 3 hereto.

"Royalty Income" means income from sales of Core or Mid-Core therapeutic products by Optigen Technologies Ltd (before taxes and discounts), less

- (i) duties and sales taxes and those expenses listed below actually incurred and paid by or on behalf of the Assignee in connection with the delivery of such products including, without limitation:
- (ii) transport charges (including carriage insurance); and
- (iii) delivery expenses; and
- (iv) costs of packaging; and
- (v) discounts or allowances; and
- (vi) credit for claims, allowances or returned products; and value added tax and duties and taxes assessed directly on sales.

"Specified Licences" means a licence of the Patents to any third party (being other than a member of the Optigen Group) where such third party will be the principal developer of a marketable therapy or product.

2 ASSIGNMENT OF ASSIGNED IPR

2.1 In consideration of both (a) the payment of the sum of €10 (ten Euro) by the Assignee to each of the Assignors (the receipt and sufficiency of which each of the Assignors hereby acknowledges), and (b) the sums agreed to be paid to TCD as outlined in Clause 6 hereto, and the various undertakings the Assignee pursuant to this Agreement, the sufficiency of which is hereby acknowledged by each of the Assignors, each of the Assignors hereby:-

2.1.1 ASSIGNS to the Assignee free from all liens, charges and encumbrances, all right, title and interest in the Assigned IPR, throughout the world, whether now known or in the future created to which he is now or may in the future be entitled, in any and all media throughout the world, including all modifications, improvements, continuation-in-parts, provisionals, renewals, revivals and extensions thereof and thereafter (insofar as each of the Assignors is able so to do) in perpetuity, TO HOLD the same unto the Assignee, its successors and assignees, absolutely;

2.1.2 agrees that this Agreement constitutes a full buy out of all his rights, entitlements and interests in relation to the Assigned IPR, and that the within consideration represents equitable, full and adequate remuneration for all purposes which may be vested in it by the laws of this or any other jurisdiction, and which right he now hereby irrevocably, unconditionally and in perpetuity grants and assigns onto the Assignee SAVE THAT it is acknowledged that each of the inventors has a rights to share in TCD's royalty income as defined by TCD's royalty sharing policy;

2.1.3 to the extent that by law any Assigned IPR or the rights therein do not, or are not permitted to or cannot vest in or belong to the Assignee, agrees to hold same on trust for the benefit of the Assignee;

2.1.4 grants to the Assignee, in consideration of the fees to be paid pursuant to Clause 6 hereto, a worldwide, non-exclusive irrevocable and perpetual licence (with the right to grant sub-licenses to third parties) to use-all Background IPR owned by him or which

he has a right to licence, to the extent necessary to enable the Assignee to exploit the Assigned IPR; and

2.1.5 undertakes, at the request and expense of the Assignee, at any time in the future, to ~~execute all such documents, give such assistance and do such acts and things as may~~ in the opinion of the Assignee be necessary or desirable to give effect to the terms of this Clause 2 and for the protection and enforcement of the Assigned IPR, and irrevocably appoints the Assignee or its nominee as its attorney with the right to execute and sign as his act and deed in his name and on his behalf all documents as may in the opinion of the Assignee be necessary or desirable to give effect to the terms of this Clause 2.

2.2 For the avoidance of doubt, all Background IPR shall remain the property of the party introducing the same, and nothing in this Agreement shall prevent any party from using its own Background IPR for any purpose.

3 TRANSFER BY DELIVERY

Immediately following the execution of this Agreement, each of the Assignors shall deliver to the Assignee such of the Assigned Materials as are capable of passing by delivery and shall allow the Assignee to take possession of the Assigned Materials.

4 CONFIDENTIAL INFORMATION

Each of the Assignors acknowledges that the Assigned IPR and Assigned Materials are highly valuable assets, and agrees to keep the foregoing secret at all times and shall not at any time either during or after this Agreement for whatever reason, use, communicate, reveal, or cause any unauthorised disclosure whether through any failure to exercise all due care and diligence or otherwise, to any person for its own or another's benefit, any of the Assigned IPR or Assigned Materials, without the prior written consent of the Assignee. Each of the Assignors shall also use its best endeavours to prevent the publication or disclosure of any of the Assigned IPR or Assigned Materials.

5 UNDERTAKINGS OF THE ASSIGNEE

5.1 The Assignee undertakes to TCD not to, and each of the Inventors and Optigen Technologies shall procure that the Assignee shall, incur any borrowings (other than from a member of the Optigen Group) or enter into any commercial contracts other than this Agreement and the grant of licences of and any other rights to use the Assigned IPR and Assigned Materials to any other party for whatever consideration and, subject to clause 5.2, on whatever terms as the Assignee may, in each case, think fit.

5.2 Where a licence of either Assigned IPR or Assigned Materials is granted by the Assignee to a member of the Optigen Group, it shall provide that, in the event of an insolvency of the licensee, such licence shall terminate forthwith.

5.3 The Assignee acknowledges that the Assigned IPR has been assigned to it on an "as is" "where is" basis, without warranty, and that TCD is not under any obligation to indemnify the Assignee, or any licensee of the Assignee, in respect of any claims arising from the sale or use of products manufactured utilising any of the Assigned IPR.

5.4 The Assignee agrees not to use the names of any parties listed (1) to (7) of this Agreement in respect of its business without the prior written consent of the relevant individual, such consent not to be unreasonably withheld or delayed. For the avoidance of doubt, the Assignee

can use the names of any of the said parties when identifying them as inventors in respect of any patent applications.

- 5.5 Each of the Assignee and Optigen Technologies undertake to pay all renewal fees due in relation to the Patents, and not to allow them to lapse without obtaining the prior written consent of TCD to do so, such consent not to be unreasonably withheld or delayed.

6 PAYMENTS

- 6.1 The Assignee shall pay to TCD, until the earlier of (a) twenty-years from the date of this Agreement, or (b) the last to expire of the Patents:

6.1.1 No payments shall be due in respect of Core Products that are therapies to address the genetic disorders Retinitis pigmentosa, Osteogenesis imperfecta and p53 cancers.

6.1.2 15% of the Royalty Income received by Optigen Technologies from sales to patients of Mid-Core Products and 5% of Royalty Income received by Optigen Technologies Ltd from sales to patients of Core Products other than those exempted in 6.1.1;

6.1.3 subject to Clause 6.2, 50% of Royalty Income received by Optigen Technologies Ltd from the grant of a Specified Licence.

- 6.2 For a period of four years from the date on which the first royalties are payable under Clause 6.1.3, the Assignee shall be permitted to use any sums payable to TCD pursuant to Clause 6.1.3 for research and development purposes of any member of the Optigen Group, and in the event that it does so, no sums shall be payable in that four year period to TCD pursuant to this Clause 6.1.3.

- 6.3 Royalties arising under Clause 6.1 above shall be paid in Euros within 30 days of the end of each calendar year of the Agreement, to the credit of a bank account to be designated in writing by TCD.

7 MISCELLANEOUS

- 7.1 None of the parties shall assign any of their rights under this Agreement without the prior written consent of the other parties.

- 7.2 Nothing in this Agreement shall create, or be deemed to create, a partnership, joint venture, or the relationship of principal and agent, between the parties, and none of the parties shall have any right or authority to act on behalf of any of the other parties or to bind any of the other parties in any way.

- 7.3 This Agreement contains the entire agreement between the parties with respect to its subject matter and supersedes all previous agreements and understandings between the parties, and may not be modified except by an instrument in writing signed by the duly authorised representatives of the parties.

- 7.4 Any waiver by either party of a breach of any provision of this Agreement shall not be considered as a waiver of any subsequent breach of the same or any other provisions.

- 7.5 If any provision of this Agreement is held by any court or other competent authority to be void or unenforceable in whole or part, the other provisions of this Agreement and the remainder of the affected provisions shall continue to be valid.

- 7.6 Any notices or other communication required or permitted to be given under or in connection with this Agreement shall be in writing and shall be given by sending the same in a prepaid

airmail letter or by courier to the address of the relevant party set out in this Agreement, or to such other address as that party may have notified to the other for the purposes of this Agreement. Any notice sent by post shall be deemed (in the absence of evidence of earlier receipt), to have been delivered forty eight hours after posting, and in proving the fact of despatch it shall be sufficient that the envelope containing the notice was properly addressed stamped and posted.

- 7.7 This Agreement shall be governed by and construed in accordance with the laws of Ireland and shall be subject to the exclusive jurisdiction of the Irish Courts.

8 CERTIFICATE OF VALUE

- 8.1 IT IS HEREBY CERTIFIED that the consideration (other than rent) for this Agreement is wholly attributable to property which is not residential property.
- 8.2 IT IS HEREBY CERTIFIED that this deed does not form part of a larger transaction or a series of transactions in respect of which the amount or value or the aggregate amount or value of the consideration exceeds twenty thousand euro (€20,000).

SCHEDULE 1

The Patents

Application Number	Subject	Patent Priority Date
PCT/GB96/02357	UTR Removal & Replacement	Sept. 21 st , 1995
PCT/GB97/00574	Allele removal & replacement	March 3 rd , 1997
PCT/GB97/00929	Removal & replacement	April 2 nd , 1996

SCHEDULE 2

Assigned Materials

All laboratory notes and data.

All biological materials (including, without limitation, all modifications, progeny, descendants and derivatives of biological material).

All cell systems.

All animal systems (transgenic mice).

All vector (viral and non-viral) systems.

All DNA inserts.

All reagents and tools for the expression and detection of DNA/RNA/protein.

SCHEDULE 3

The Projects

The Projects entitled:

"Exploration of gene therapy for dominantly inherited retinopathies".

"Therapeutic approaches for dominantly inherited retinopathies".

IN WITNESS WHEREOF the parties have caused this Agreement to be duly executed as a Deed and is intended to be delivered and is delivered on the date and year first herein written.

SIGNED SEALED and DELIVERED
by JANE FARRAR
in the presence of:

Witness:

Witness:

SIGNED SEALED and DELIVERED
by GEARÓID TUOHY
in the presence of:

Witness:

Witness:

SIGNED SEALED and DELIVERED
by PETER HUMPHRIES
in the presence of:

Witness:

Witness:

SIGNED SEALED and DELIVERED
by PAUL KENNA
in the presence of:

Witness:

Witness:

SIGNED SEALED and DELIVERED
by MARY O'REILLY
in the presence of:

Witness:

Witness:

SIGNED SEALED and DELIVERED
by SOPHIA MILLINGTON-WARD
in the presence of:

Witness:

Witness:

SIGNED SEALED and DELIVERED
by BRIAN O'NEILL
in the presence of:

Witness:

Witness:

Signed by EOIN O'NEILL, duly authorised,
for and on behalf of THE PROVOST FELLOWS
AND SCHOLARS OF THE COLLEGE OF THE HOLY
AND UNDIVIDED TRINITY OF
QUEEN ELIZABETH NEAR DUBLIN
in the presence of:

Witness:

Witness:

Signed by PROVOST JOHN HEGARTY, duly authorised,
for and on behalf of the FELLOWS
AND SCHOLARS OF THE COLLEGE OF THE HOLY
AND UNDIVIDED TRINITY OF
QUEEN ELIZABETH NEAR DUBLIN
in the presence of:


Witness:

Witness:

~~PRESENT~~ when the Common Seal of
OPTIGEN PATENTS LIMITED
was affixed hereto:

Director:

Director/Secretary:

 ~~PRESENT~~ when the Common Seal of
OPTIGEN TECHNOLOGIES LIMITED
was affixed hereto:

Director:

Director/Secretary:

DATED

200

-
- (1) JANE FARRAR
 - (2) GEAROID TUOHY
 - (3) PETER HUMPHRIES
 - (4) PAUL KENNA
 - (5) MARY O'REILLY
 - (6) SOPHIA MILLINGTON-WARD
 - (7) BRIAN O'NEILL
 - (8) TRINITY COLLEGE DUBLIN
 - (9) OPTIGEN PATENTS LIMITED
 - (10) OPTIGEN TECHNOLOGIES LIMITED

INTELLECTUAL PROPERTY AGREEMENT

\\MOP_DUBLIN\726156.6

DATED APRIL 15TH 2003

- (1) JANE FARRAR
- (2) GEAROID TUOHY
- (3) PETER HUMPHRIES
- (4) PAUL KENNA
- (5) MARY O'REILLY
- (6) SOPHIA MILLINGTON-WARD
- (7) BRIAN O'NEILL
- (8) TRINITY COLLEGE DUBLIN
- (9) OPTIGEN PATENTS LIMITED
- (10) OPTIGEN TECHNOLOGIES LIMITED

AMENDMENT AGREEMENT

THIS AGREEMENT is made the 15th day of April 2003

BETWEEN:

- (1) JANE FARRAR of 9 The Crescent, Monkstown, Co. Dublin;
- (2) GEAROID TUOHY of 7 Carriglea Avenue, Carriglea Downs, Dun Laoghaire, Co. Dublin;;
- (3) PETER HUMPHRIES of 5 Holmwood, Brennanstown Road, Foxrock, Co. Dublin;
- (4) PAUL KENNA of 176 New Cabra Road, Dublin 7
- (5) MARY O'REILLY of 5 Proby Hall, Killiney, Co. Dublin;
- (6) SOPHIA MILLINGTON-WARD of 15 De Courcey Square, Glasnevin, Dublin 9;
- (7) BRIAN O'NEILL c/o Department of Genetics, Trinity College Dublin, Dublin 2
- (8) THE PROVOST FELLOWS AND SCHOLARS OF THE COLLEGE FO THE HOLY AND UNDIVIDED TRINITY OF QUEEN ELIZABETH NEAR DUBLIN ("TCD");

(parties (1) to (8) hereinafter referred to as "the Assignors"); and

- (9) OPTIGEN PATENTS LIMITED a company incorporated under the laws of Ireland, having its registered office at the Department of Genetics, Trinity College Dublin ("the Assignee"); and
- (10) OPTIGEN TECHNOLOGIES LIMITED a company incorporated under the laws of Ireland, having its registered office at the Department of Genetics, TCD, Dublin 2 ("Optigen Technologies")

WHEREAS:

- A. Pursuant to the Intellectual Property Agreement (as hereinafter defined), the Assignors assigned certain intellectual property relating to research and development carried out by them, to the Assignee.
- B. The parties have subsequently become aware that, in error, the details of all patents and patent applications which were the subject matter of the aforementioned assignment were not listed in the Schedule of Patents attached to the Intellectual Property Agreement, and also that the definition of "Assigned IPR" did not specifically refer to "continuations" or to "divisionals".
- C. The parties have agreed to amend the Intellectual Property Agreement on the terms of this Agreement.

NOW IT IS HEREBY AGREED AS FOLLOWS:

1 INTERPRETATION

- 1.1 In this Agreement, unless the context otherwise requires or unless otherwise specified, the following terms shall have the following meanings:-

"Intellectual Property Agreement" shall mean the Agreement executed by each of the parties hereto on the Effective Date pursuant to which, among other things, the Assignors assigned certain intellectual property rights to the Assignee;

"Effective Date" shall mean 20 January 2003, being the date of execution of the Intellectual Property Agreement.

Save in respect of the above definitions, the terms used in this Agreement shall have the same meaning as those terms have in the Intellectual Property Agreement, as amended by this Agreement.

2 AMENDMENT

2.1 The parties hereby agree that:

2.1.1 Schedule 1 of the Intellectual Property Agreement is replaced, with effect from the Effective Date, with the Schedule attached hereto; and

2.1.2 the definition of "Assigned IPR" in the Intellectual Property Agreement is replaced, with effect from the Effective Date, with the following definition: "means (a) the Patents, and (b) all improvements and/or modifications and/or continuations-in-part and /or provisionals ~~and/or divisionals and/or continuations and/or continuation applications and/or divisional applications~~ made to the subject-matter of the Patents prior to the date of this Assignment, and (c) all IPR which has been produced, invented or discovered by or on behalf of any of the Assignors whether alone or with any other person at any time prior to the date of this Agreement, and in the course of the Projects, and which is necessary to exploit (a) and/or (b)."

2.1.3. Clause 5.1 of the Intellectual Property Agreement is replaced, with effect from the Effective Date, with the following clause:

5.1. The Assignee undertakes to TCD not to, and each of the Inventors and Optigen Technologies shall procure that the Assignee shall not, incur any borrowings (other than from a member of the Optigen Group) or enter into any commercial contracts other than this Agreement and the grant of licences of and any other rights to use the Assigned IPR and Assigned Materials to any other party for whatever consideration and, subject to clause 5.2, on whatever terms as the Assignee may, in each case, think fit.

3 CONFIRMATORY ASSIGNMENT

3.1 The parties confirm that it was always the intention of the parties that all Assigned IPR would be assigned to the Assignee pursuant to the Intellectual Property Agreement. To the extent that some or any of the Assigned IPR was not effectively assigned pursuant to the Intellectual Property Agreement, each of the Assignors hereby:-

3.1.1 ASSIGNS to the Assignee free from all liens, charges and encumbrances, all right, title and interest in such Assigned IPR, throughout the world, whether now known or in the future created to which he is now or may in the future be entitled, in any and all media throughout the world, including all modifications, improvements, continuation-in-parts, provisionals, renewals, revivals and extensions thereof and thereafter (insofar as each of the Assignors is able so to do) in perpetuity, TO HOLD the same unto the Assignee, its successors and assignees, absolutely;

- 3.1.2 agrees that this Agreement constitutes a full buy out of all his rights, entitlements and interests in relation to such Assigned IPR, and that the within consideration represents equitable, full and adequate remuneration for all purposes which may be vested in it by the laws of this or any other jurisdiction, and which right he now hereby irrevocably, unconditionally and in perpetuity grants and assigns onto the Assignee SAVE THAT it is acknowledged that each of the inventors has a right to share in TCD's royalty income as defined by TCD's royalty sharing policy;
- 3.1.3 to the extent that by law any such Assigned IPR or the rights therein do not, or are not permitted to or cannot vest in or belong to the Assignee, agrees to hold same on trust for the benefit of the Assignee;
- 3.1.4 grants to the Assignee a worldwide, non-exclusive irrevocable and perpetual licence (with the right to grant sub-licenses to third parties) to use all Background IPR owned by him or which he has a right to licence, to the extent necessary to enable the Assignee to exploit such Assigned IPR; and
- 3.1.5 undertakes, at the request and expense of the Assignee, at any time in the future, to execute all such documents, give such assistance and do such acts and things as may in the opinion of the Assignee be necessary or desirable to give effect to the terms of this Clause 3 and for the protection and enforcement of such Assigned IPR, and irrevocably appoints the Assignee or its nominee as its attorney with the right to execute and sign as his act and deed in his name and on his behalf all documents as may in the opinion of the Assignee be necessary or desirable to give effect to the terms of this Clause 3.
- 3.2 For the avoidance of doubt, all Background IPR shall remain the property of the party introducing the same, and nothing in this Agreement shall prevent any party from using its own Background IPR for any purpose.

4 TRANSFER BY DELIVERY

To the extent that any of same was not delivered following execution of the Intellectual Property Agreement, immediately following the execution of this Agreement, each of the Assignors shall deliver to the Assignee such of the Assigned Materials as are capable of passing by delivery and shall allow the Assignee to take possession of the Assigned Materials.

5 MISCELLANEOUS

- 5.1 None of the parties shall assign any of their rights under this Agreement without the prior written consent of the other parties.
- 5.2 Nothing in this Agreement shall create, or be deemed to create, a partnership, joint venture, or the relationship of principal and agent, between the parties, and none of the parties shall have any right or authority to act on behalf of any of the other parties or to bind any of the other parties in any way.
- 5.3 This Agreement, together with the Intellectual Property Agreement, contains the entire agreement between the parties with respect to its subject matter and supersedes all previous agreements and understandings between the parties, and may not be modified except by an instrument in writing signed by the duly authorised representatives of the parties.
- 5.4 Any waiver by either party of a breach of any provision of this Agreement shall not be considered as a waiver of any subsequent breach of the same or any other provisions.

5.5 If any provision of this Agreement is held by any court or other competent authority to be void or unenforceable in whole or part, the other provisions of this Agreement and the remainder of the affected provisions shall continue to be valid.

5.6 Any notices or other communication required or permitted to be given under or in connection with this Agreement shall be in writing and shall be given by sending the same in a prepaid airmail letter or by courier to the address of the relevant party set out in this Agreement, or to such other address as that party may have notified to the other for the purposes of this Agreement. Any notice sent by post shall be deemed (in the absence of evidence of earlier receipt), to have been delivered forty eight hours after posting, and in proving the fact of despatch it shall be sufficient that the envelope containing the notice was properly addressed stamped and posted.

5.7 This Agreement shall be governed by and construed in accordance with the laws of Ireland and shall be subject to the exclusive jurisdiction of the Irish Courts.

6 CERTIFICATE OF VALUE

6.1 IT IS HEREBY CERTIFIED that the consideration (other than rent) for this Agreement is wholly attributable to property which is not residential property.

6.2 IT IS HEREBY CERTIFIED that this deed does not form part of a larger transaction or a series of transactions in respect of which the amount or value or the aggregate amount or value of the consideration exceeds twenty thousand euro (€20,000).

SCHEDULE

The Patents

Application/Publication No.	SUBJECT	Status
PCT/GB96/02357	Genetic Strategy	National Phase
EP 96931887.2	Genetic Strategy	Pending
US 09/043,506	Genetic Strategy	Pending
CA 2232738	Genetic Strategy	Pending
AU 72192/00	Genetic Strategy	Pending
NZ 318818	Genetic Strategy	Granted
PCT/GB97/00574	Allele Suppression	National Phase
EP 97906817.8	Allele Suppression	Pending
US 09/142,125	Allele Suppression	Pending
CA 2248869	Allele Suppression	Pending
AU 22238/97	Allele Suppression	Granted
NZ 332113	Allele Suppression	Granted
PCT/GB97/00929	Genetic Suppression and Replacement	National Phase
EP 97915579.3	Genetic Suppression and Replacement	Pending
US 09/155,708	Genetic Suppression and Replacement	Pending
CA 2251696	Genetic Suppression and Replacement	Pending
AU 23007/97	Genetic Suppression and Replacement	Granted
NZ 332586	Genetic Suppression and Replacement	Granted
PCT/GB02/005417	Suppression of Polymorphic Alleles	Pending
US 60/407,389	Genetic Suppression and Replacement	Pending
US 60/414,698	Genetic Suppression and Replacement	Pending
US 10/000,773	Suppression of Polymorphic Alleles	Pending

IN WITNESS WHEREOF the parties have caused this Agreement to be duly executed as a Deed and is intended to be delivered and is delivered on the date and year first herein written.

SIGNED SEALED and DELIVERED
by JANE FARRAR
in the presence of:

Witness:

Witness:

SIGNED SEALED and DELIVERED
by GEARÓID TUOHY
in the presence of:

Witness:

Witness:

SIGNED SEALED and DELIVERED
by PETER HUMPHRIES
in the presence of:

Witness:

Witness:

SIGNED SEALED and DELIVERED
by PAUL KENNA
in the presence of:

Witness:

Witness:

SIGNED SEALED and DELIVERED
by MARY O'REILLY
in the presence of:

Witness:

Witness:

SIGNED SEALED and DELIVERED
by **SOPHIA MILLINGTON-WARD**
in the presence of:

Witness:

Witness:

SIGNED SEALED and DELIVERED
by **BRIAN O'NEILL**
in the presence of:

Witness:

Witness:

Signed by **EOIN O'NEILL**, duly authorised,
for and on behalf of **THE PROVOST FELLOWS**
AND SCHOLARS OF THE COLLEGE OF THE HOLY
AND UNDIVIDED TRINITY OF
QUEEN ELIZABETH NEAR DUBLIN
in the presence of:

Witness:

Witness:

Signed by **PROVOST JOHN HEGARTY**, duly authorised,
for and on behalf of the **FELLOWS**
AND SCHOLARS OF THE COLLEGE OF THE HOLY
AND UNDIVIDED TRINITY OF
QUEEN ELIZABETH NEAR DUBLIN
in the presence of:

Witness:

Witness:

PRESENT when the Common Seal of
OPTIGEN PATENTS LIMITED
was affixed hereto:

Director:

Director/Secretary:

PRESENT when the Common Seal of
OPTIGEN TECHNOLOGIES LIMITED
was affixed hereto:

Director:

Director/Secretary:

DATED APRIL 15TH 2003

- (1) JANE FARRAR
- (2) GEAROID TUOHY
- (3) PETER HUMPHRIES
- (4) PAUL KENNA
- (5) MARY O'REILLY
- (6) SOPHIA MILLINGTON-WARD
- (7) BRIAN O'NEILL
- (8) TRINITY COLLEGE DUBLIN
- (9) OPTIGEN PATENTS LIMITED
- (10) OPTIGEN TECHNOLOGIES LIMITED

AMENDMENT AGREEMENT

IN WITNESS whereof the parties hereto have entered into this Agreement the day and year first herein written.

SIGNED SEALED and DELIVERED
by JANE FARRAR
in the presence of:

SIGNED SEALED and DELIVERED
by GEARÓID TUOHY
in the presence of:

SIGNED SEALED and DELIVERED
by PETER HUMPHRIES
in the presence of:

SIGNED SEALED and DELIVERED
by PAUL KENNA
in the presence of:

SIGNED SEALED and DELIVERED
by MARY O'REILLY
in the presence of:

SIGNED SEALED and DELIVERED
by SOPHIA MILLINGTON-WARD
in the presence of:

SIGNED SEALED and DELIVERED
by BRIAN O'NEILL
in the presence of:

SIGNED SEALED and DELIVERED
by DENISE SHEELS
in the presence of:

Signed by EOIN O'NEILL, duly authorised,
for and on behalf of THE PROVOST FELLOWS
AND SCHOLARS OF THE COLLEGE OF THE HOLY
AND UNDIVIDED TRINITY OF
QUEEN ELIZABETH NEAR DUBLIN
in the presence of:

PRESENT when the Common Seal
of THE PROVOST FELLOWS & SCHOLARS
OF THE COLLEGE OF THE HOLY AND UNDIVIDED TRINITY OF QUEEN ELIZABETH
NEAR DUBLIN was affixed hereto:-

Signed by JOHN HEGARTY,
PROVOST OF THE COLLEGE OF THE HOLY
AND UNDIVIDED TRINITY OF QUEEN ELIZABETH NEAR DUBLIN

Duly authorised for and on behalf of
DUBLIN BUSINESS INNOVATION CENTRE
in the presence of:

Duly authorised for and on behalf of
CATALYST BIOMEDICA LIMITED
in the presence of:

Duly authorised for and on behalf of
FIGHTING BLINDNESS
in the presence of:

PRESENT when the Common Seal of
OPTIGEN TECHNOLOGIES LIMITED
was affixed hereto: