

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT4729898

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
Name		Execution Date
PIONEER SURGICAL ORTHOBIOLOGICS, INC.		09/25/2013
RECEIVING PARTY DATA		
Name:	PIONEER SURGICAL ORTHOBIOLOGICS, INC.	
Street Address:	375 RIVER PARK CIRCLE	
City:	MARQUETTE	
State/Country:	MICHIGAN	
Postal Code:	49855	
PROPERTY NUMBERS Total: 1		
Property Type	Number	
Application Number:	15454304	
CORRESPONDENCE DATA		
Fax Number:	(919)755-2150	
<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>		
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Address Line 2:	WOMBLE BOND DICKINSON (US) LLP	
Address Line 4:	RALEIGH, NORTH CAROLINA 27601	
ATTORNEY DOCKET NUMBER:	P63782 1020USD1C2 (0043.0	
NAME OF SUBMITTER:	RYAN W. CAGLE	
SIGNATURE:	/ryan w. cagle/	
DATE SIGNED:	12/12/2017	
Total Attachments: 9		
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WORLDWIDE PATENT AND INVENTION ASSIGNMENT

WHEREAS, **PIONEER SURGICAL ORTHOBIOLOGICS, INC.**, a corporation organized under the laws of the state of Delaware and located and doing business at 375 River Park Circle, Marquette, Michigan 49855, being previously known as ENCELLE, INC., (hereinafter referred to as "Assignor") presents that it has previously acquired all right, title, and interest in and to the United States patent and/or patent applications identified in the attached Appendix (Tables 1 – 4) and in and to all corresponding patents and/or patent applications worldwide, and in and to the inventions represented thereby (all hereinafter referred to as the "Patents"); and,

WHEREAS, **PIONEER SURGICAL TECHNOLOGY, INC.**, a corporation organized under the laws of the state of Delaware, which is a wholly owned subsidiary of RTI Surgical, Inc. and located and doing business at 375 River Park Circle, Marquette, Michigan 49855 (hereinafter referred to as "Assignee"), is desirous of acquiring the entire right, title and interest in and to said Patents and in and to the inventions represented thereby; and

WHEREAS, the parties have agreed to the Assignment hereinafter set forth;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor, by these presents, does sell, assign and transfer unto Assignee the full, exclusive and entire right, title and interest, worldwide: (i) in and to all inventions and improvements disclosed and described in the Patents; (ii) in and to said Patents and Application(s) and any other United States national stage, provisional, non-provisional, divisional, continuation, continuation-in-part, or design patent applications based in whole or in part upon said inventions or improvements and/or claiming priority to said Patents and Application(s) (the "U.S. Applications"); (iii) in and to any Patent Cooperation Treaty applications based in whole or in part upon said inventions or improvements and/or claiming priority to said Patents; (iv) in and to any and all applications for industrial property protection, including without limitation applications for patent, utility model, inventor's certificate, and design, filed or which are hereafter filed in countries outside the United States (the "Foreign Applications") and which describe in whole or in part said inventions and improvements, said Foreign Applications to be filed and issued in the name of Assignee or its designee insofar as permitted by applicable law; (v) in and to all patents or similar protective rights in the United States or elsewhere which may be granted on the U.S. Applications and Foreign Applications and all reissues, reexaminations, and extensions thereof, any and all such patents or other protective rights to issue in the name of Assignee and for the sole use and behalf of Assignee and its successors and assigns; and (vi) in and to the right to claim any applicable foreign or domestic priority rights arising from or required for any of the aforementioned patents and applications under the terms of any applicable conventions, treaties, statutes, or regulations.

Assignor hereby directs the United States Patent and Trademark Office and all foreign patent offices to issue any and all aforementioned patents or similar protective rights in the

United States or elsewhere in the name of **Assignee**, for the interest and for the sole use and behoof of **Assignee**, and its successors and assigns.

For the same consideration, **Assignor** agrees to: (i) communicate to **Assignee**, its successors, legal representatives, and assigns, any facts known to **Assignor** respecting said invention and improvements or the history thereof and any and all documents, photographs, models, samples, or other physical exhibits which may embody said inventions or improvements; (ii) sign, execute, or otherwise facilitate the signing or execution of all lawful papers, applications, declarations, affidavits, assignments, and rightful oaths that may be requested by **Assignee** during prosecution or enforcement of any rights related to the inventions and improvements; (iii) subject to **Assignee's** agreement to reimburse **Assignor** for any reasonable costs and expenses, testify in any proceedings relating to said invention or improvements or rights granted therefor; and (iv) generally do everything possible to aid **Assignee**, its successors, legal representatives, and assigns, to obtain and enforce proper protection for all said inventions and improvements in all countries throughout the world.

Assignor covenants with **Assignee**, its successors, assigns, and legal representatives that no assignment, grant, security interest, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned.

By execution of this document, the undersigned warrants that he/she has full authority to transfer all right, title, and interest related to the subject matter described herein on behalf of the Assignor.

Executed on behalf of
PIONEER SURGICAL ORTHOBIOLOGICS, INC.

By: Chad Kolean
Secretary


(signature)

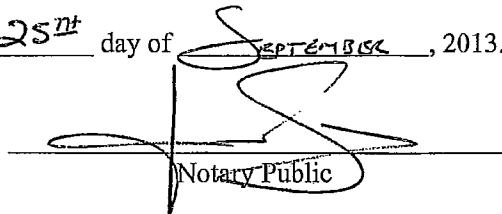
Date: 9/25/2013

State of MICHIGAN)
County of MARQUETTE)

I, JOHN SULLIVAN, a Notary Public for said County and State, do hereby certify that CHAD KOLEAN, personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and official seal, this the 25th day of SEPTEMBER, 2013.

(Official Seal)

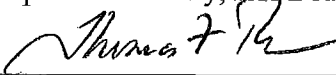

Notary Public

My commission expires _____

JOHN SULLIVAN
Notary public, Marquette County, Michigan
My commission expires August 24, 2020

Executed on behalf of
PIONEER SURGICAL TECHNOLOGY, INC.
(a wholly owned subsidiary of RTI Surgical, Inc.)

By: Thomas F. Rose
EVP, Administration, RTI Surgical, Inc.;
Corporate Secretary, RTI Board of Directors


(Signature)

Date: 11/1/13

State of Michigan)

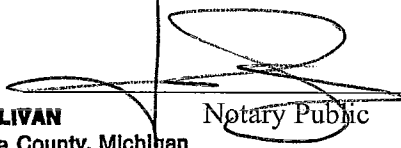
County of Marquette)

I, John Sullivan, a Notary Public for said County and State, do hereby
certify that THOMAS F. ROSE, personally appeared before me this day and acknowledged the
due execution of the foregoing instrument.

Witness my hand and official seal, this the 1 day of November, 2013.

(Official Seal)

JOHN SULLIVAN


Notary Public

My commission expires Notary public, Marquette County, Michigan
My commission expires August 24, 2020

APPENDIX

TABLE 1 U.S. PATENTS		
Patent No.	Issue Date	Title
8,053,423	November 8, 2011	METHOD OF PREPARING CROSS-LINKED BIOACTIVE HYDROGEL MATRICES
7,799,767	September 21, 2010	CROSS-LINKED BIOACTIVE HYDROGEL MATRICES
7,700,660	April 20, 2010	METHOD OF TREATING CHRONIC ULCERS
7,303,814	December 4, 2007	IMMOBILIZED BIOACTIVE HYDROGEL MATRICES AS SURFACE COATINGS
6,992,062	January 31, 2006	METHOD OF STIMULATION HAIR GROWTH
6,730,315	May 4, 2004	MEDIUM AND MATRIX FOR LONG-TERM PROLIFERATION OF CELLS
6,713,079	March 30, 2004	METHODS FOR INCREASING VASCULARIZATION AND PROMOTING WOUND HEALING
6,352,707	March 5, 2002	TRANSPLANT ENCAPSULATION IN A HYDROGEL MATRIX TO OBSERVE IMMUNE RECOGNITION
6,315,994	November 13, 2001	MEDIUM AND MATRIX FOR LONG-TERM PROLIFERATION OF CELLS
6,270,977	August 7, 2001	SPECIFIC, HIGHLY SENSITIVE, NESTED PCR DETECTION SCHEME FOR THE PSEUDORABIES VIRUS
6,261,587	July 17, 2001	METHODS FOR INCREASING VASCULARIZATION AND PROMOTING WOUND HEALING
6,231,881	May 15, 2001	MEDIUM AND MATRIX FOR LONG-TERM PROLIFERATION OF CELLS
6,068,974	May 30, 2000	SPECIFIC, HIGHLY SENSITIVE, NESTED PCR DETECTION SCHEME FOR THE PSEUDORABIES VIRUS
5,922,339	July 13, 1999	COMPOSITIONS AND METHODS FOR BICOMPATIBLE IMPLANTS
5,908,633	June 1, 1999	BIOARTIFICIAL HORMONE RELEASING DEVICE
5,834,005	November 10, 1998	BIOARTIFICIAL DEVICES AND CELLULAR MATRICES THEREFOR
5,830,492	November 3, 1998	BIOARTIFICIAL DEVICES AND CELLULAR MATRICES THEREFOR
5,824,331	October 20, 1998	BIOARTIFICIAL DEVICES AND CELLULAR MATRICES THEREFOR
5,776,324	July 7, 1998	ELECTROCHEMICAL BIOSENSORS
5,614,205	March 25, 1997	BIOARTIFICIAL ENDOCRINE DEVICE

APPENDIX

TABLE 2 U.S. PATENT APPLICATIONS		
Application No.	Filing Date	Title
61/390,430	October 6, 2010	COMPOSITE BIOMATERIAL FOR ACCELERATED WOUND HEALING IN HARD AND SOFT TISSUES
60/989,176	November 20, 2007	CRYOPRESERVATION OF CELLS USING CROSS-LINKED BIOACTIVE HYDROGEL MATRIX PARTICLES
60/513,392	October 22, 2003	METHOD FOR REGENERATING CONNECTIVE TISSUE
60/358,625	February 21, 2002	STABILIZED BIOACTIVE HYDROGEL MATRIX
60/208,116	May 31, 2000	METHOD OF TREATING WOUNDS AND STIMULATING HAIR GROWTH
13/793,644	March 11, 2013	CROSS-LINKED BIOACTIVE HYDROGEL MATRICES
13/600,661	August 31, 2012	METHODS AND COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
13/600,642	August 31, 2012	METHODS AND COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
13/252,500	October 4, 2011	CROSS-LINKED BIOACTIVE HYDROGEL MATRICES
12/356,213	January 20, 2009	METHODS AND COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
12/356,195	January 20, 2009	METHODS AND COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
12/274,765	November 20, 2008	CRYOPRESERVATION OF CELLS USING CROSS-LINKED BIOACTIVE HYDROGEL MATRIX PARTICLES
12/039,214	February 28, 2008	METHODS AND COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
11/937,851	November 9, 2007	IMMOBILIZED BIOACTIVE HYDROGEL MATRICES AS SURFACE COATINGS
10/971,544	October 22, 2004	METHODS AND COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
09/396,875	September 15, 1999	METHOD OF PRESERVING ISSUE VIABILITY DURING MECHANICAL SEPARATION PROCESS
08/906,852	August 6, 1997	APPARATUS FOR HOUSING A MEDICAL DEVICE
08/300,429	September 2, 1994	BIOARTIFICIAL ENDOCRINE DEVICE
07/841,973	February 24, 1992	BIOARTIFICIAL ENDOCRINE DEVICE

APPENDIX

**TABLE 3
FOREIGN PATENTS**

Patent No.	Grant Date	Title
AU 2004285480	March 31, 2011	BIOACTIVE HYDROGEL COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
AU 2003213253	July 24, 2008	CROSS-LINKED BIOACTIVE HYDROGEL MATRICES
AU 2003515330	June 26, 2008	IMMOBILIZED BIOACTIVE HYDROGEL MATRICES AS SURFACE COATINGS
AU 2001263495	September 16, 2005	METHOD FOR TREATING CHRONIC ULCERS
AU 758833	July 17, 2003	MEDIUM AND MATRIX FOR LONG-TERM PROLIFERATION OF CELLS
AU 757968	June 26, 2003	METHODS FOR INCREASING VASCULARIZATION AND PROMOTING WOUND HEALING
AU 756049	April 23, 2003	METHOD OF OBSCURING IMMUNE RECOGNITION
AU 743253	May 9, 2002	COMPOSITIONS AND METHODS FOR BIOCOMPATIBLE IMPLANTS
AU 715241	May 11, 2000	ELECTROCHEMICAL BIOSENSORS
AU 714465	April 20, 2000	BIOARTIFICIAL DEVICES AND CELLULAR MATRICES THEREFOR
AU 663,938	October 26, 1995	BIOARTIFICIAL ENDOCRINE DEVICE
CA 2,410,968	March 29, 2011	METHOD FOR TREATING CHRONIC ULCERS
CA 2,410,965	September 14, 2010	METHOD OF STIMULATING HAIR GROWTH
CA 2,332,701	April 20, 2010	MEDIUM AND MATRIX FOR LONG-TERM PROLIFERATION OF CELLS
CA 2,476,653	January 27, 2009	CROSS-LINKED BIOACTIVE HYDROGEL MATRICES
CA 2,476,656	November 25, 2008	IMMOBILIZED BIOACTIVE HYDROGEL MATRICES AS SURFACE COATINGS
CA 2,337,051	April 17, 2007	METHODS FOR INCREASING VASCULARIZATION AND PROMOTING WOUND HEALING
CA 2,337,047	March 20, 2007	METHOD OF OBSCURING IMMUNE RECOGNITION
CA 2,109,065	March 30, 2004	BIOARTIFICIAL ENDOCRINE DEVICE
CA 2,239,498	September 9, 2003	BIOARTIFICIAL DEVICES AND CELLULAR MATRICES THEREFOR
CA 2,254,873	April 1, 2003	ELECTROCHEMICAL BIOSENSORS
EP 1 096 962	November 25, 2009	METHOD OF OBSCURING IMMUNE RECOGNITION
EP 1 476 202	January 14, 2009	CROSS-LINKED BIOACTIVE HYDROGEL MATRICES
EP 1 476 204	October 8, 2008	IMMOBILIZED BIOACTIVE HYDROGEL MATRICES AS SURFACE COATINGS
EP 1 094 849	May 17, 2006	METHODS FOR INCREASING VASCULARIZATION AND PROMOTING WOUND HEALING
EP 1 321 516	March 22, 2006	HYDROGEL MATRIX FOR CELLULAR TISSUE STORAGE
EP 1 289 537	November 30, 2005	METHOD FOR TREATING CHRONIC ULCERS
EP 0 865 288	August 20, 2003	BIOARTIFICIAL DEVICES AND CELLULAR MATRICES THEREFOR
EP 0 898 705	July 23, 2003	ELECTROCHEMICAL BIOSENSORS
EP 1 051 209	December 4, 2002	COMPOSITIONS AND METHODS FOR BIOCOMPATIBLE IMPLANTS
EP 0 587 840	December 15, 1999	BIOARTIFICIAL ENDOCRINE DEVICE
FI 111335	July 15, 2003	BIOARTIFICIAL ENDOCRINE DEVICE
JP 4624678	November 12, 2010	CROSS-LINKED BIOACTIVE HYDROGEL MATRICES
JP 4489437	April 9, 2010	CROSS-LINKED BIOACTIVE HYDROGEL MATRICES AS SURFACE COATINGS
JP 3606585	October 15, 2004	BIOARTIFICIAL DEVICES AND CELLULAR MATRICES THEREFOR

APPENDIX

**TABLE 3
FOREIGN PATENTS**

Patent No.	Grant Date	Title
JP 3291297	March 22, 2002	BIOARTIFICIAL ENDOCRINE DEVICE
NO 309124	December 18, 2000	BIOARTIFICIAL ENDOCRINE DEVICE
NZ 581804	February 7, 2012	BIOACTIVE HYDROGEL COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
NZ 547140	January 7, 2010	BIOACTIVE HYDROGEL COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
NZ 535136	July 13, 2006	IMMOBILIZED BIOACTIVE HYDROGEL MATRICES AS SURFACE COATINGS
NZ 535369	June 8, 2006	CROSS-LINKED BIOACTIVE HYDROGEL MATRICES
NZ 523461	March 10, 2005	METHOD FOR TREATING CHRONIC ULCERS
TR 200902773	January 14, 2009	CROSS-LINKED BIOACTIVE HYDROGEL MATRICES
TR 03711151.5	February 21, 2003	IMMOBILIZED BIOACTIVE HYDROGEL MATRICES AS SURFACE COATINGS
TW NI-156045	September 16, 2002	HYDROGEL MATRIX SUITABLE FOR LONG TERM STORAGE FOR CELLULAR TISSUE, BIOARTIFICIAL IMPLANTABLE DEVICE AND METHOD FOR HARVESTING ISLETS FROM PANCREATA
ZA 96/10297	August 27, 1997	BIOARTIFICIAL DEVICES AND CELLULAR MATRICES

APPENDIX

TABLE 4
FOREIGN PATENT APPLICATIONS

Application No.	Filing Date	Title
CA 2,543,255	April 21, 2006	METHODS AND COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
CA 2,318,808	July 27, 2000	COMPOSITIONS AND METHODS FOR BIOCOMPATIBLE IMPLANTS
EP 12167741.3	May 14, 2012	BIOACTIVE HYDROGEL COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
EP 08852924.3	June 16, 2010	CRYOPRESERVATION OF CELLS USING CROSS-LINKED BIOACTIVE HYDROGEL MATRIX PARTICLES
EP 04796100.8	April 28, 2006	BIOACTIVE HYDROGEL COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
EP 99933791.8	January 17, 2001	MEDIUM AND MATRIX FOR LONG-TERM PROLIFERATION OF CELLS
IN 1975/CAL/96	November 14, 1996	BIOARTIFICIAL DEVICES AND CELLULAR MATRICES
JP 9-541202/1997	December 18, 2002	ELECTROCHEMICAL BIOSENSORS
JP 2000-559221	January 10, 2001	MEDIUM AND MATRIX FOR LONG-TERM PROLIFERATION OF CELLS
JP 2000-528317	July 27, 2000	COMPOSITIONS AND METHODS FOR BIOCOMPATIBLE IMPLANTS
KR 2000-7008201	July 27, 2000	COMPOSITIONS AND METHODS FOR BIOCOMPATIBLE IMPLANTS
KR 1998-0709245	November 16, 1998	ELECTROCHEMICAL BIOSENSORS
NZ 578289	July 9, 2009	BIOACTIVE HYDROGEL COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
PCT/US2008/084196	November 20, 2008	CRYOPRESERVATION OF CELLS USING CROSS-LINKED BIOACTIVE HYDROGEL MATRIX PARTICLES
PCT/US2004/035046	October 22, 2004	BIOACTIVE HYDROGEL COMPOSITIONS FOR REGENERATING CONNECTIVE TISSUE
PCT/US2003/005072	February 21, 2003	IMMOBILIZED BIOACTIVE HYDROGEL MATRICES AS SURFACE COATINGS
PCT/US2003/005511	February 21, 2003	CROSS-LINKED BIOACTIVE HYDROGEL MATRICES
PCT/US2001/017386	May 30, 2001	METHOD OF STIMULATING HAIR GROWTH
PCT/US2001/017387	May 30, 2001	METHOD OF TREATING CHRONIC ULCERS
PCT/US2000/025372	September 15, 2000	METHOD OF PRESERVING ISSUE VIABILITY DURING MECHANICAL SEPARATION PROCESS
PCT/US1999/015464	July 9, 1999	MEDIUM AND MATRIX FOR LONG-TERM PROLIFERATION OF CELLS
PCT/US1999/015614	July 9, 1999	METHODS FOR INCREASING VASCULARIZATION AND PROMOTING WOUND HEALING
PCT/US1999/015465	July 9, 1999	METHOD OF OBSCURING IMMUNE RECOGNITION
PCT/US1999/001051	January 19, 1999	COMPOSITIONS AND METHODS FOR BIOCOMPATIBLE IMPLANTS
PCT/US1998/000919	January 23, 1998	BIOARTIFICIAL HORMONE RELEASING DEVICE
PCT/US1997/008648	May 16, 1997	ELECTROCHEMICAL BIOSENSORS
PCT/US1996/018209	November 14, 1996	BIOARTIFICIAL DEVICES AND CELLULAR MATRICES THEREFOR
PCT/US1993/001583	February 23, 1993	BIOARTIFICIAL ENDOCRINE DEVICE