TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

ETAS ID: TM327474

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST

CONVEYING PARTY DATA

Name	Formerly	Execution Date	Entity Type
ISTO Technologies, Inc.		12/22/2014	CORPORATION: DELAWARE

RECEIVING PARTY DATA

Name:	MidCap Financial SBIC, LP, as Agent
Street Address:	7255 Woodmont Avenue
Internal Address:	Suite 200
City:	Bethesda
State/Country:	MARYLAND
Postal Code:	20814
Entity Type:	LIMITED PARTNERSHIP: DELAWARE

PROPERTY NUMBERS Total: 8

Property Type	Number	Word Mark
Serial Number:	85953086	INFLUX TRABECULAR BONE GRAFT
Serial Number:	85921705	REVAFLEX
Registration Number:	3336291	INQU
Registration Number:	2826325	ISTO
Registration Number:	3851270	NUQU
Registration Number:	3466871	ISTO
Serial Number:	86373987	CELLPOINT
Serial Number:	86373992	CELLPOINT CONCENTRATED BONE MARROW ASPIR

OP $215.00 85953086

CORRESPONDENCE DATA

Fax Number: 4044435697

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.

Phone: 404-443-5744
Email: lallen@mcguirewoods.com
Correspondent Name: Laura Phillips, Esq.
Address Line 1: McGuireWoods LLP
Address Line 2: 1230 Peachtree Street, Suite 2100
Address Line 4: Atlanta, GEORGIA 30309

ATTORNEY DOCKET NUMBER:	2061695-0022 ISTO

NAME OF SUBMITTER:	Latosha E. Allen
SIGNATURE:	/Latosha E. Allen/
DATE SIGNED:	12/29/2014

Total Attachments: 39
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EXECUTION COPY

INTELLECTUAL PROPERTY SECURITY AGREEMENT

This Intellectual Property Security Agreement is entered into as of the 22nd day of December 2014 by and between **MIDCAP FINANCIAL SBIC, LP**, a Delaware limited partnership ("Agent") and **ISTO TECHNOLOGIES, INC.** ("Grantor").

RECITALS

A. The Lenders have agreed to make certain advances of money and to extend certain financial accommodation to Grantor (the "Loans") in the amounts and manner set forth in that certain Second Amended and Restated Credit and Security Agreement by and between Agent, the Lenders and Grantor dated as of the date hereof (as the same may be amended, restated, supplemented or otherwise modified from time to time, the "Credit Agreement"; capitalized terms used herein are used as defined in the Credit Agreement). The Lenders are willing to make the Loans to Grantor, but only upon the condition, among others, that Grantor shall grant to Agent, for the ratable benefit of the Lenders, a security interest in certain Copyrights, Trademarks, Patents, and Mask Works (as each term is described below) to secure the obligations of Grantor under the Credit Agreement.

B. Pursuant to the terms of the Credit Agreement, Grantor has granted to Agent, for the ratable benefit of the Lenders, a security interest in all of Grantor's right, title and interest, whether presently existing or hereafter acquired, in, to and under all of the Collateral.

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, and intending to be legally bound, as collateral security for the prompt and complete payment when due of the obligations under the Credit Agreement, Grantor hereby represents, warrants, covenants and agrees as follows:

AGREEMENT

To secure the Obligations under the Credit Agreement, Grantor grants and pledges to Agent, for the ratable benefit of the Lenders, a security interest in all of Grantor's right, title and interest in, to and under its intellectual property (all of which shall collectively be called the "Intellectual Property Collateral"), including, without limitation, the following:

(a) Any and all copyright rights, copyright applications, copyright registrations and like protections in each work or authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret, now or hereafter existing, created, acquired or held, including without limitation those set forth on Exhibit A attached hereto (collectively, the "Copyrights");

(b) Any and all trade secrets, and any and all intellectual property rights in computer software and computer software products now or hereafter existing, created, acquired or held;

(c) Any and all design rights that may be available to Grantor now or hereafter existing, created, acquired or held;

(d) All patents, patent applications and like protections including, without limitation, improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the

same, including without limitation the patents and patent applications set forth on Exhibit B attached hereto (collectively, the "Patents");

(e) Any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of Grantor connected with and symbolized by such trademarks, including without limitation those set forth on Exhibit C attached hereto (collectively, the "Trademarks");

(f) All mask works or similar rights available for the protection of semiconductor chips, now owned or hereafter acquired, including, without limitation those set forth on Exhibit D attached hereto (collectively, the "Mask Works");

(g) Any and all claims for damages by way of past, present and future infringements of any of the rights included above, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the intellectual property rights identified above;

(h) All licenses or other rights to use any of the Copyrights, Patents, Trademarks, or Mask Works and all license fees and royalties arising from such use to the extent permitted by such license or rights;

(i) All amendments, extensions, renewals and extensions of any of the Copyrights, Trademarks, Patents, or Mask Works; and

(j) All proceeds and products of the foregoing, including without limitation all payments under insurance or any indemnity or warranty payable in respect of any of the foregoing.

This security interest is granted in conjunction with the security interest granted to Agent, for the ratable benefit of the Lenders, under the Credit Agreement. The rights and remedies of Agent with respect to the security interest granted hereby are in addition to those set forth in the Credit Agreement and the other Financing Documents, and those which are now or hereafter available to Agent as a matter of law or equity. Each right, power and remedy of Agent provided for herein or in the Credit Agreement or any of the Financing Documents, or now or hereafter existing at law or in equity shall be cumulative and concurrent and shall be in addition to every right, power or remedy provided for herein and the exercise by Agent of any one or more of the rights, powers or remedies provided for in this Intellectual Property Security Agreement, the Credit Agreement or any of the other Financing Documents, or now or hereafter existing at law or in equity, shall not preclude the simultaneous or later exercise by any person, including Agent, of any or all other rights, powers or remedies. Notwithstanding anything herein to the contrary, to the extent that there is any conflict between this Intellectual Property Security Agreement and the Credit Agreement, the Credit Agreement shall control.

[Signature page follows.]

IN WITNESS WHEREOF, the parties have caused this Intellectual Property Security Agreement to be duly executed by its officers thereunto duly authorized as of the first date written above.

GRANTOR:

ISTO TECHNOLOGIES, INC.

By: _____
Name: Scott Gill
Title: CEO

Address of Grantor:

ISTO Technologies, Inc.
1155 Olivette Executive Parkway
St. Louis, MO 63132
Attn: Scott Gill

IN WITNESS WHEREOF, the parties have caused this Intellectual Property Security Agreement to be duly executed by its officers thereunto duly authorized as of the first date written above.

AGENT:

Address of Agent:

MIDCAP FINANCIAL SBIC, LP

By: Midcap Financial SBIC GP, LLC

7255 Woodmont Avenue, Suite 200
Bethesda, Maryland 20814
Attn: Portfolio Management- Life Sciences

By: Colleen S. Kovas
Name: Colleen S. Kovas
Title: Authorized Signatory

INTELLECTUAL PROPERTY SCHEDULE

(See attached)

ISTO – PATENTS AND PATENT APPLICATIONS

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125588 (#6)	60/748,027	N/A	Cartilage Repair Methods	Mitchell S. Seyedin Matthew Matava	Provisional filed 12-7-2005 Continuity Data: 11/635,265 PCT/US2006/46576 EP1973554 JP2008-544482 CA2631520	1. A method for repairing a hyaline cartilage defect in a mammalian joint, the method comprising: infiltrating the joint with autologous mesenchymal stem cells; and applying to the joint a membrane comprising a polyester entangled with a polysaccharide.	Expired- NP and PCT application filed.
125588	11/635,265	US 8,444,968 Issued 5-20-2013 US2007/0128155 6-7-2007	Cartilage Repair Methods	Mitchell S. Seyedin Matthew Matava	Non-Provisional filed 12-7-2006 Continuity Data: PCT/US2006/46576 EP1973554 JP2008-544482 CA2631520	Claims 1-25 Withdrawn 26. A method for repairing a full-thickness chondral defect of a joint of a patient in need of treatment, the method comprising: microfracturing bone underlying the joint; applying to the joint a membrane, wherein the membrane comprises polyester polymers entangled with hyaluronic acid polymers, at a weight ration of polyester to hyaluronic polymers of between 9:1 and 1:9, wherein the membrane is produced by forming an emulsified mixture of the two polymers, adding the emulsified mixture to a mold, and after freezing the mixture in the mold, removing solvent from the frozen mixture by vacuum, and the membrane has a thickness of at least 0.5 mm up to 3 mm; and anchoring the membrane to the joint.	Issued

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125510	PCT/US06/46576	WO/2007/067637 6-14-2007	Cartilage Repair Methods	Mitchell S. Seyedin Matthew Matava	PCT filed 12-7-2006 Continuity Data: 11/635,265 EP1973554 JP2008-544482 CA2631520	1. A method for repairing a hyaline cartilage defect in a mammalian joint, the method comprising: infiltrating the joint with autologous mesenchymal stem cells; and applying to the joint a membrane comprising a polyester entangled with a polysaccharide.	Expired – National stage applications filed see Continuity Data under Priority Claims section.
126205	EP06839104.4	EP197355410-1-2008	Cartilage Repair Methods	Mitchell S. Seyedin Matthew Matava	EP filed 12-7-2006 Continuity Data: 11/635,265 PCT/US2006/46576 JP2008-544482 CA2631520	1. A method for repairing a hyaline cartilage defect in a mammalian joint, the method comprising: infiltrating the joint with autologous mesenchymal stem cells; and applying to the joint a membrane comprising a polyester entangled with a polysaccharide.	Pending-Annuity due 12-7-2014
126208	JP2008-544482		Cartilage Repair Methods	Mitchell S. Seyedin Matthew Matava	JP Filed 12-7-2006 Continuity Data: 11/635,265 PCT/US2006/46576 EP1973554 CA2631520	1. A method for repairing a hyaline cartilage defect in a mammalian joint, the method comprising: infiltrating the joint with autologous mesenchymal stem cells; and applying to the joint a membrane comprising a polyester entangled with a polysaccharide.	Pending-Waiting on further office action
126207	CA2631520		Cartilage Repair Methods	Mitchell S. Seyedin Matthew Matava	CA filed 12-7-2006 Continuity Data: 11/635,265 PCT/US2006/46576 EP1973554 JP2008-544482	1. A method for repairing a hyaline cartilage defect in a mammalian joint, the method comprising: infiltrating the joint with autologous mesenchymal stem cells; and applying to the joint a membrane comprising a polyester entangled with a polysaccharide.	Abandoned 12-07-2012

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125614	10/956,971	7,273,756 Published 9-25-2007	Improved Method for Chondrocyte Expansion with Phenotype Retention	H. Davis Adkisson, IV Curt L. Milliman Neil Kizer	Non-Provisional filed 10-1-2004 Continuity Data: 11/859,524 PCT/US05/35187 EP1794284 PCT/US2008/077161	1. (Issued) A method for expanding a population of chondrocytes in which the chondrocytes retain a rounded morphology and hyaline cartilage gene expression, the method comprising: culturing a population of chondrocytes on a substrate in a culture medium, wherein the culture medium comprises at least one cytokine and wherein the substrate comprises polystyrene and hyaluronic acid which are covalentyly bound, wherein th population of chondrocytes can undergo at least 3.8 doublings while at least 50% of the cells retain rounded morphology and hyaline cartilage gene expression.	Issued 9-25-2007 *Intellectual Property Covenant Not to Sue Agreement recorded 3/14/13 at Reel/Frame: 029993/0019 Assignor: Isto Technologies Inc. Assignee: Zimmer, Inc.
125590	CIP11/859,524	Patent No. 8,017,394 issued 9-13-2011US2008/0813694-3-2008	Improved Method for Chondrocyte Expansion with Phenotype Retention	H. Davis Adkisson, IVCurt L. MillimanNeil Kizer	CIP filed 9-21-2007 Continuity Data: PCT/US05/35187 EP1794284 PCT/US2008/077161 10/956,971	Claims 1-12 Withdrawn13. A method for producing cartilage tissue in vitro, the method comprising: isolating a population of chondrocytes from donor cartilage tissue; expanding the population of cartilage chondrocytes in an expansion medium and on a substrate under conditions effective to prevent attachment of a majority of the chondrocytes to the substrate; seeding a plurality of chondrocytes from the expanded population of cartilage chondrocytes in a tissue production medium on a polycarbonate substrate having a plurality of pores therethrough, the pores having an inner diameter of at least 1 micron to about 12 microns and, culturing the seeded chondrocytes in the tissue production medium on the porous polycarbonate substrate for a period of time sufficient for the chondrocytes to produce extracellular matrix, thereby producing in vitro a cultured cartilage tissue characterized by a random organization of cells.	Issued 9-13-2011 *Intellectual Property Covenant Not to Sue Agreement recorded 3/14/13 at Reel/Frame: 029993/0019 Assignor: Isto Technologies Inc. Assignee: Zimmer, Inc.

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125614 #6	PCT/US05/35187	WO/2006/039484 4-13-2006	Improved--- Method for Chondrocyte Expansion with Phenotype Retention	H. Davis Adkisson, IV Curt L. Milliman Neil Kizer	PCT filed 9-30-2005 Continuity Data: 11/859,524 EP1794284 PCT/US2008/077161 10/956,971	1. A method for expanding a cell population comprising chondrocytes, chondrocyte precursors, or a combination thereof, the method comprising incubating the cell population in a microenvironment comprising a) a culture medium comprising at least one cytokine and b) a substratum comprising i) tissue culture plastic and ii) hyaluronic acid, N-acetylglucosamine or a combination thereof.	Expired – National stage applications filed. See Continuity Data under Priority Claims section.
125591	EP05816194.4	EP1794284 6-13-2007	Improved--- Method for Chondrocyte Expansion with Phenotype Retention	H. Davis Adkisson, IV Curt L. Milliman Neil Kizer	EP filed 1-30-2007 Continuity Data: 10/956,971 11/859,524 PCT/US05/35187 PCT/US2008/077161	1. A method for expanding a population of cells, comprising: culturing a population of cells in a culture medium comprising at least one cytokine on a substrate having a surface modified with hyaluronic acid; and maintaining the population of cells on the substrate for a sufficient time to allow at least one doubling of the population of cells.	Pending – in prosecution.
129431	PCT/US2008/077161	WO2009/039469	Improved--- Method for Chondrocyte Expansion with Phenotype Retention	H. Davis Adkisson, IV Curt L. Milliman Neil Kizer	Continuity Data: 10/956,971 11/859,524 PCT/US05/35187 EP1794284	1. A method for producing cartilage tissue in vitro, the method comprising: isolating a population of chondrocytes from donor tissue; and expanding the population of chondrocytes in an expansion medium and on a substrate under low attachment conditions so that after at least 3.8 doublings of the chondrocyte population, at least 50% of the chondrocytes retain rounded morphology and hyaline cartilage gene expression.	Expired – National stage applications filed. See Continuity Data under Priority Claims section.

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
409911	JP2010-526037		Method for Chondrocyte Expansion with Phenotype Retention	H. Davis Adkisson, IV Curt L. Milliman Neil Kizer	JP filed 3-23-10	1. A method for producing cartilage tissue in vitro, the method comprising: isolating a population of chondrocytes from donor tissue; and expanding the population of chondrocytes in an expansion medium and on a substrate under low attachment conditions so that after at least 3.8 doublings of the chondrocyte population, at least 50% of the chondrocytes retain rounded morphology and hyaline cartilage gene expression.	Abandoned
409912	EP08831789.6		Method for Chondrocyte Expansion with Phenotype Retention	H. Davis Adkisson, IV Curt L. Milliman Neil Kizer	EP filed 9-22-2008	1. A method for producing cartilage tissue in vitro, the method comprising: isolating a population of chondrocytes from donor tissue; and expanding the population of chondrocytes in an expansion medium and on a substrate under low attachment conditions so that after at least 3.8 doublings of the chondrocyte population, at least 50% of the chondrocytes retain rounded morphology and hyaline cartilage gene expression.	Pending- in prosecution.
410567	AU2008302088		Method for Chondrocyte Expansion with Phenotype Retention	H. Davis Adkisson, IV Curt L. Milliman Neil Kizer	AU filed 9/22/2008	1. A method for expanding a population of cells, comprising: culturing a population of cells in a culture medium comprising at least one cytokine on a substrate having a surface modified with hyaluronic acid; and maintaining the population of cells on the substrate for a sufficient time to allow at least one doubling of the population of cells.	Pending- in prosecution.

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
N/A	60/546,619	N/A	Intervertebral Disc Replacement System	Mitchell S. Seyedin Robert Spiro H. Davis Adkisson IV	Provisional Filed 2-20-2004 Continuity Data: 11/063,183 PCT/US05/05282 11/458,278 12/058,193 HK07107770.4 EP1753860	1. A device for implantation into the nucleus pulposus of an intervertebral disc, the device comprising hyaline cartilage.	Expired – NP and PCT applications filed
125629	11/063,183	Issued: 7,879,604 2-1-2011 US2005-0196387 9-8-2005	Intervertebral Disc Repair, Methods and Devices Therefor	Mitchell S. Seyedin Robert Spiro H. Davis Adkisson IV	Non-Provisional filed 2-22-2005 Continuity Data: PCT/US05/05282 11/458,278 12/058,193 HK07107770.4 EP1753860	(Issued Claim 1). A method of repairing a degenerative intervertebral disc in a human subject in need of such repair, the method comprising: (a) isolating a population of articular cartilage chondrocytes from a cadaver donor; (b) expanding said population in vitro in a substantially serum-free growth medium, thereby yielding expanded articular cartilage chondrocytes; (c) mixing said expanded articular cartilage chondrocytes with a thrombin solution to yield a mixture of expanded articular cartilage chondrocytes in thrombin; (d) adding fibrin to said mixture to yield a suspension of expanded articular cartilage chondrocytes; and then immediately (e) injecting said suspension into a degenerative intervertebral disc of a human subject.	Issued 2-1-2011

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125629 (#7)	PCT/US05/05282	WO/2005/081870 9-9-2005	Intervertebral Disc Repair, Methods and Devices Therefor	Mitchell S. Seyedin Robert Spiro H. Davis Adkisson IV	PCT filed 2-22-2005 Continuity Data: 11/063,183 11/458,278 12/058,193 HK07107770.4 EP1753860	1. A method of purveying to a treatment provider chondrocytes for repairing a degenerative intervertebral disc in a patient in need thereof, the method comprising: obtaining chondrocytes expressing type II collagen from a cadaver; growing the chondrocytes expressing type II collagen in vitro; and delivering the chondrocytes expressing type II collagen to the treatment provider, wherein the chondrocytes are adapted for injection into the degenerative intervertebral disc in the patient.	Expired – National stage applications filed see Continuity Data under Priority Claims section.
125625	CIP 11/458,278	US2006-0275273 12-7-2006	Intervertebral Disc Repair, Methods and Devices Therefor	Mitchell S. Seyedin Robert Spiro H. Davis Adkisson IV	CIP filed 7-18-2006 Continuity Data: 11/063,183 PCT/US05/05282 12/058,193 HK07107770.4 EP1753860	Claim 1: A method of repairing a degenerative intervertebral disc in a subject, the method comprising: a) injecting into the degenerative intervertebral, through an aperture or incision in the annulus of the intervertebral disc, a composition comprising an expanded population of viable articular cartilage chondrocytes in a cell suspension and comprising an initial population of articular cartilage chondrocytes extracted from a cadaver donor, the initial population expanded in vitro in a substantially serum-free growth medium; and b) forming a closure of the aperture or incision following injection of the cell suspension composition.	Pending- in prosecution.

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
472802	CON 14/218,486		Intervertebral Disc Repair, Methods and Devices Therefor	Mitchell S. Seyedin Robert Spiro H. Davis Adkisson IV	Continuity Data: CON of 11/063,183 & 11/458,278 PCT/US05/05282 HK07107770.4 EP1753860	1. A method of implanting viable chondrocytes in a degenerative intervertebral disc in a subject, the method comprising: a) injecting through an opening in the annulus of the degenerative intervertebral disc, into the nucleus pulposus of the disc, a composition comprising: (i) a suspension of a population of viable articular cartilage chondrocytes; (ii) thrombin; and (iii) fibrin; b) forming a closure of the opening following injection of the cell suspension composition.	Pending – in prosecution.
126185	CON12/058,193	US2008-0299214Published	Intervertebral Disc Repair, Methods and Devices Therefor	Mitchell S. Seyedin Robert Spiro H. Davis Adkisson IV	Continuity Data: 11/063,183 PCT/US05/05282 11/458,278 HK07107770.4 EP1753860	**Claims 1-35 Canceled36.** A method of treating intervertebral disc degeneration in a subject in need thereof, the method comprising: providing a hyaline cartilage composition comprising non-intervertebral cartilage tissue and a first biocompatible molecule; combining the hyaline cartilage composition with a second composition comprising a second biocompatible molecule to form a third composition; injecting the third composition into an intervertebral disc of the subject.	Pending - in prosecution. *Assignment from inventors to ISTO Technologies effected by assignment of parent application, which covers this, a continuation application.
125613	HK 07107770.4		Intervertebral Disc Repair, Methods and Devices Therefor	Mitchell S. Seyedin Robert Spiro H. Davis Adkisson IV	HK filed 7-18-2007 Continuity Data: 11/063,183 PCT/US05/05282 11/458,278 12/058,193 EP1753860	1. A method of purveying to a treatment provider chondrocytes for repairing a degenerative intervertebral disc in a patient in need thereof, the method comprising: obtaining chondrocytes expressing type II collagen from a cadaver; growing the chondrocytes expressing type II collagen in vitro; and delivering the chondrocytes expressing type II collagen to the treatment provider, wherein the chondrocytes are adapted for injection into the	Abandoned

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
						degenerative intervertebral disc in the patient.	
125626	EP05723321.5	EP1753860 2-21-2007	Intervertebral Disc Repair, Methods and Devices Therefor	Mitchell S. Seyedin Robert Spiro H. Davis Adkisson IV	EP filed 2-22-2005 Continuity Data: 11/063,183 PCT/US05/05282 11/458,278 12/058,193 HK07107770.4	1. A method of purveying to a treatment provider chondrocytes for repairing a degenerative intervertebral disc in a patient in need thereof, the method comprising: obtaining chondrocytes expressing type II collagen from a cadaver; growing the chondrocytes expressing type II collagen in vitro; and delivering the chondrocytes expressing type II collagen to the treatment provider, wherein the chondrocytes are adapted for injection into the degenerative intervertebral disc in the patient.	National Phase (Issued)
125618(# 6)	60/587,088	N/A	Tissue Matrix System	Mitchell S. Seyedin Robert Spiro	Provisional Filed on 7-12-2004 Continuity Data 11/179,425 PCT/US05/24571 EP1773299 CA2570521 JP2007-521541 AU2005287402 11/448,701 PCT/US07/070631 EP07812056.5	1. A method for preparing a matrix to support the repair of tissue comprising the steps of entangling an exogenous polyester polymer with an exogenous polysaccharide polymer to form said matrix.	Expired – NP and PCT applications filed.

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125618	11/179,425	8,192,759 6-5-2012 US2006-0008530 1-12-2006	Tissue Matrix System	Mitchell S. Seyedin Robert Spiro	Non-Provisional filed 7-11-2005 Continuity Data PCT/US05/24571 EP1773299 CA2570521 JP2007-521541 AU2005287402 11/448,701 PCT/US07/070631 EP07812056.5	1. A matrix for supporting repair of a tissue, comprising polyester polymers entangled with hyaluronic acid polymers, said matrix being formed by the steps of: (i) dissolving polyester polymers in an organic solvent; (ii) blending the polyester polymers with hyaluronic acid polymers contained in an aqueous medium; and (iii) pouring the blended mixture of the two polymers into a mold, and (iv) successively removing the organic solvent and water from the mold; wherein said matrix is characterized by (i) retention of pore structure and shape when hydrated and (ii) the ability to support the growth of cells in vivo or ex vivo.	Issued 06-05-2012
125618(#7)	PCT/US2005/024571	WO/2006/033683 30-2006	Tissue Matrix System	Mitchell S. Seyedin Robert Spiro	PCT filed 7-11-2005 Continuity Data: 11/179,425 EP1773299 CA2570521 JP2007-521541 AU2005287402 11/448,701 PCT/US07/070631 EP07812056.5	1. A matrix for supporting repair of a tissue, the matrix comprising a polyester entangled with a polysaccharide.	Expired – National stage applications filed see Continuity Data under Priority Claims section.

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125624	EP05812025.4	EP1773299 4-18-2007	Tissue Matrix System	Mitchell S. Seyedin Robert Spiro	EP filed 7-11-2005 Continuity Data 11/179,425 PCT/US05/24571 CA2570521 JP2007-521541 AU2005287402 11/448,701 PCT/US07/070631 EP07812056.5	1. A matrix for supporting repair of a tissue, the matrix comprising a polyester entangled with a polysaccharide.	Pending - in prosecution.
125620	CA2570521	NA	Tissue Matrix System	Mitchell S. Seyedin Robert Spiro	CA filed 7-11-2005 Continuity Data 11/179,425 PCT/US05/24571 EP1773299 JP2007-521541 AU2005287402 11/448,701 PCT/US07/070631 EP07812056.5	1. A matrix for supporting repair of a tissue, the matrix comprising a polyester entangled with a polysaccharide.	Issued -06-25-2013
125610	JP2007-521541	NA	Tissue Matrix System	Mitchell S. Seyedin Robert Spiro	JP filed 7-11-2005 Continuity Data 11/179,425 PCT/US05/24571 EP1773299 CA2570521 AU2005287402 11/448,701 PCT/US07/070631 EP07812056.5	1. A matrix for supporting repair of a tissue, the matrix comprising a polyester entangled with a polysaccharide.	Issued 03-16-2012 - Annuity fee due 03-16-2015

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125630	AU2005287402	NA	Tissue Matrix System	Mitchell S. Seyedin Robert Spiro	AU filed 7-11-2005 Continuity Data 11/179,425 PCT/US05/24571 EP1773299 CA2570521 JP2007-521541 11/448,701 PCT/US07/070631 EP07812056.5	1. A matrix for supporting repair of a tissue, the matrix comprising a polyester entangled with a polysaccharide.	Issued 06-16-2011 – Annuity fee due 07-11-2014
125617	CIP 11/448,701	US8,512,730 Issued 08-20-2013 US2006-022839110-12-2006	Tissue Matrix System --- Methods of Tissue Repair and Compositions Therefor	Mitchell S. Seyedin Gary Gage	CIP filed 6-7-2006 Continuity Data 11/179,425 PCT/US05/24571 EP1773299 CA2570521 JP2007-521541 AU2005287402 PCT/US07/070631 EP07812056.5	1. A method for promoting tissue growth in a mammal in need thereof, the method comprising administering to the mammal, at a site in need of tissue growth, a matrix comprising polyester polymers entangled with hyaluronic acid polymers at a weight ration of polyester to hyaluronic polymers of between 9:1 and 1:9, where the membrane with entangled polymers is produced by forming an emulsified mixture of the two polymers, adding the emulsified mixture to a mold, and after freezing the mixture in the mold, removing solvent from the frozen mixture by vacuum, wherein the site of tissue growth comprises bone, tendon tissue, ligament tissue, vascular tissue, dermal tissue, periodontal tissue, intervertebral disc tissue, hyaline cartilage, fibrous cartilage, elastic cartilage, a nerve tunnel or a combination thereof.	Issued 08-20-2013

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125616	PCT/US07/070631	WO/2007/143726 12-13-2007	Tissue Matrix System---Methods & Compositions For Tissue Repair	Mitchell S. Seyedin Gary Gage	PCT Continuity Data 11/179,425 PCT/US05/24571 EP1773299 CA2570521 JP2007-521541 AU2005287402 11/448,701 EP07812056.5	1. A method for promoting tissue growth in a mammal in need thereof, the method comprising administering to the mammal, at a site in need of tissue growth, a matrix comprising a polyester entangled with a polysaccharide, wherein the site of tissue growth comprises tendon tissue, ligament tissue, vascular tissue, dermal tissue, periodontal tissue, intervertebral disc tissue, hyaline cartilage, fibrous cartilage, elastic cartilage, a nerve tunnel or a combination thereof.	Expired – National stage applications filed see Continuity Data under Priority Claims section.
127870	EP07812056.5	NA	Tissue Matrix System---Methods & Compositions For Tissue Repair	Mitchell S. Seyedin Gary Gage	Continuity Data 11/179,425 PCT/US05/24571 EP1773299 CA2570521 JP2007-521541A U2005287402 11/448,701 PCT/US07/070631	1. Use of a matrix in the preparation of a medicament for promoting tissue growth in a mammal in need thereof, at a tissue site in need of tissue growth, the matrix comprising a polyester entangled with a polysaccharide.	Pending- in prosecution.

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
427230	13/167,537 Filed 6-23-2011	US 8,580,289 issued 11-12-2013 US 2011-0256095 Published 10-20-11	CON Tissue Matrix System	Mitchell S. Seyedin Gary Gage	Continuity Data 11/179,425 PCT/US05/24571 EP1773299 CA2570521 JP2007-521541 AU2005287402 11/448,701 PCT/US07/070631	1. A matrix composition for supporting repair of a tissue comprising polyester polymers entangled with hyaluronic acid polymers, said composition being formed by the steps of: (i) dissolving polyester polymers in an organic solvent; (ii) blending the polyester polymers with hyaluronic acid polymers contained in an aqueous medium to form an emulsifed mixture; (iii) freezing the emulsified mixture of the two polymers, and (iv) successively removing the organic solvent and water from the frozen mixture; wherein said composition is characterized by (i) retention of pore structure when hydrated and (ii) the ability to support the growth of cells in vivo or ex vivo.	Issued 11-12-2013
422762	61/484,848	NA	PROV Injection Pressure Measurement Device	Michael Maloney	Prov. Filed 5/11/2011	Claim: 1. An injection pressure monitoring device for coupling to a dispensing syringe, comprising: a. a pressure sensor comprising a miniature or subminiature load cell operable for measuring a compression load of up to about 100 lb, having an amplifier and an electrical coupling coupled thereto for coupling to a pressure display unit; b. a syringe adapter coupled to the load cell, the syringe adapter having a first surface configured to engage an outward end portion of a plunger rod of a plunger rod assembly of the dispensing syringe; and c. a finger plate coupled to the load cell.	Expired- PCT filed

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
437686	PCT/US2012/037548		Injection Pressure Measurement Device	Michael Maloney	PCT filed 5-11-2012 Continuity Data: 61/484,848 filed 5-11-2011 14/116,951 filed 11-11-2013	1. An injection pressure monitoring device for coupling to a dispensing syringe, comprising: a. a pressure sensor comprising a miniature or subminiature load cell operable for measuring a compression load of up to about 100 lb, having an amplifier and an electrical coupling coupled thereto for coupling to a pressure display unit; b. a syringe adapter coupled to the load cell, the syringe adapter having a first surface configured to engage an outward end portion of a plunger rod of a plunger rod assembly of the dispensing syringe; and c. a finger plate coupled to the load cell.	Expired – National State applications filed see Continuity Data under Priority Claims section.
465276	14/116,951		Injection Pressure Monitoring Device and System	Michael Maloney	US Nat'l Filed 11-11-2013 Continuity Data: PCT/US2012/037548 filed 05-11-2012 PRV 61/484,848 filed 05-11-2011	1. An injection pressure monitoring device for coupling to a dispensing syringe, comprising: a. a pressure sensor comprising a miniature or subminiature load cell operable for measuring a compression load of up to about 100 lb, having an amplifier and an electrical coupling coupled thereto for coupling to a pressure display unit; b. a syringe adapter coupled to the load cell, the syringe adapter having a first surface configured to engage an outward end portion of a plunger rod of a plunger rod assembly of the dispensing syringe; and c. a finger plate coupled to the load cell.	Pending office action

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
480866	62/073,738		Multi-Component Injection Systems and Methods For Tissue Repair	Michael Maloney Torrey Munger Gary Gage H. Davis Adkisson	62073,738 filed 10-31-2014	1. An injection preparation device comprising: a body configured to reversibly engage a multi-barrel carrier syringe, a cell delivery syringe and a carrier delivery syringe, the body comprising: a first transfer portion defining a first inlet configured to reversibly couple to a first barrel of the multi-barrel carrier syringe, and a second inlet configured to reversibly couple to the barrel of the cell delivery syringe, wherein the first inlet and second inlet communicate through a first conduit through the body; and a second transfer portion defining a third inlet configured to reversibly couple to a second barrel of the multi-barrel carrier syringe, a fourth inlet configured to reversibly couple to the barrel of the carrier delivery syringe, wherein the third and fourth inlets communicate through a second conduit through the body.	Pending
449270	61/727,454		Flexible Tissue Matrix	Anthony J. Ward	Filed 11-16-2012	1. A matrix for supporting repair of biological tissues comprising polymers and flexibility agents entangled with hyaluronic acid polymers; wherein the matrix is characterized by (i) retention of flexibility, compressive resistance and conformability when manipulated at temperatures typically found in operating theaters, (ii) the ability to support the growth of cells in vivo or ex vivo.	Expired - NP application filed (13/837,849)
452485	13/837,849		Flexible Tissue Matrix and Methods For Joint Repair	Mitchell S. Seyedin Anthony J. Ward Matthew Matava	NP Filed 03-15-2013 Continuity Data: 61/727,454 (parent)	1. A tissue matrix for supporting repair of biological tissues comprising a high molecular weight caprolactone polymer entangled with a polysaccharide.	Pending first office action

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
483282	CIP 14/510,917		Flexible Tissue Matrix and Methods For Joint Repair	Mitchell S. Seyedin Anthony Ward Matthew Matava		1. A composition for supporting repair of biological tissues comprising: high molecular weight caprolactone polymer molecules entangled with polysaccharide polymer molecules by a dual solvent emulsion process to form a flexible matrix, and at least one biologically active agent.	
447225	61/704,961		Delivery Device	Gary B. Gage	Filed 9-24-2012	Paperclip provisional filed - no claims	Expired
463139	14/035,677		Delivery Device	Gary B. Gage	Prov. Filed 09-24-2012 NP filed 09-24-2013	1. A delivery system for delivering a tissue repair paste composition to a tissue site in need of repair, the system comprising: an elongate housing defining a chamber for receiving the paste composition and having a proximal end and a distal end having an external surface; a plunger slidably disposed within the chamber; a flexible tube defining a lumen and having a proximal end defining a fitting having an internal surface configured to reversibly engage with the external surface of the housing distal end; a metal wire coupled to the flexible tube; a flexible tamping element comprising a flexible rod configured to be slidably disposed within the lumen of the flexible tube; a substantially rigid tube defining a lumen and having a proximal end defining a fitting	Pending first office action

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
						having an internal surface configured to reversibly engage with the external surface of the housing distal end; and a substantially rigid tamping element comprising a substantially rigid rod configured to be slidably disposed within the lumen of the substantially rigid tube.	
452485	13/837,849		Flexible Tissue Matrix and Methods for Joint Repair	Mitchell S. Seyedin Anthony J. Ward Matthew Matava	Filed 03-15-2013	1. A tissue matrix for supporting repair of biological tissues comprising a high molecular weight caprolactone polymer entangled with a polysaccharide.	Pending- pending first office action *unpublished, unable to verify
460492	PCT/US2013/070573	WO 2014/078792	Flexible Tissue Matrix	Anthony J. Ward	PCT filed 11-18-2013 Continuity Data: PRV61/727,454 filed 11-16-2012	1. A flexible matrix for supporting repair of biological tissues comprising a high molecular weight polymer entangled with hyaluronic acid polymers by a process of dual solvent emulsion, optionally further comprising at least one flexibility agent entangled with the hyaluronic acid polymers, wherein the matrix is characterized by (i) retention of flexibility, compressive resistance and conformability when manipulated during a surgery, and (ii) the ability to support the growth of cells in vivo or ex vivo.	Pending further office action
479378	62/032,255		Cartilage Compositions and Methods for Modifying Proteoglycan Content	Neil Kizer Nicole M. Bergmann Gary Gage Huston	Filing Date 08-01-2014	1. A cartilage replacement composition comprising: neocartilage maintained at a temperature below physiologic temperature for a period of time sufficient for the proteoglycan content of the neocartilage to decrease relative to the proteoglycan content of the neocartilage at a physiological temperature, wherein the neocartilage at the temperature of about 30°C or lower is capable of increasing the proteoglycan	Pending

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
				Davis Adkisson Michael Maloney		content when returned to a physiological temperature.	
479379	62/031,961		Cell Expansion Methods and Systems	Neil Kizer Nicole M. Bergmann Ulises Zlvarez Michael Maloney	Filed 08-01-2014	1. A method for expanding a population of chondrocytes, comprising: suspending the chondrocytes in a culture medium in a culture vessel, the culture medium comprising at least one polysaccharide in solution and at least one growth factor; and intermittently agitating the chondrocytes in the culture vessel for a period of time sufficient for the population to undergo at least about one doubling to produce an expanded population, wherein at least a portion of the expanded population of chondrocytes maintains a chondrocyte phenotype.	Pending

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Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125748(#6)	60/911,429	N/A	Compositions and Methods For Tissue Repair	Jian Q. Yao Ben Walthall Jizong Gao Victor Zaporojan	Filed 4-12-2007 Continuity Data: 12/101,553 PCT/US2008/060078 EP2134297 CA2684040 AU2008240191	1. A method of repairing a tissue defect, the method comprising: a) forming, on a tissue defect, a mold conforming to the contours of at least a portion of the tissue defect; removing the mold from the defect; b) forming in the mold an implant comprising: i) one or more tissue particles and ii) a biocompatible carrier, whereby the implant has a shape substantially conforming to the contours of at least the portion of the tissue defect; c) separating the implant from the mold; and d) applying the implant to at least the portion of the tissue defect.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
125748	12/101,553	US2009-0012629 Published 1-8-2009	Compositions and Methods For Tissue Repair	Jian Q. Yao Ben Walthall Jizong Gao Victor Zaporojan	Non-Provisional filed 4-11-2008 Continuity Data: PCT/US2008/060078 EP2134297 CA2684040 AU2008240191	1. A method of repairing a tissue defect, the method comprising: a) forming, on a tissue defect, a mold conforming to the contours of at least a portion of the tissue defect; removing the mold from the defect; b) forming in the mold an implant comprising: i) one or more tissue particles and ii) a biocompatible carrier, whereby the implant has a shape substantially conforming to the contours of at least the portion of the tissue defect; c) separating the implant from the mold; and d) applying the implant to at least the portion of the tissue defect.	TRANSFERRED TO ZIMMER- grant-back license to ISTO

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125749	PCT/US2008/060078	WO2008/128075 Published 10-23-2008	Compositions and Methods For Tissue Repair	Jian Q. Yao Ben Walthall Jizong Gao Victor Zaporojan	PCT filed 4-11-2008 Continuity Data: 12/101,553 EP2134297 CA2684040 AU2008240191	1. A method of repairing a tissue defect, the method comprising: a) forming, on a tissue defect, a mold conforming to the contours of at least a portion of the tissue defect;removing the mold from the defect; b) forming in the mold an implant comprising: i) one or more tissue particles and ii) a biocompatible carrier, whereby the implant has a shape substantially conforming to the contours of at least the portion of the tissue defect; c) separating the implant from the mold; and d) applying the implant to at least the portion of the tissue defect.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
404210	EP08745639.8	EP2134297	Compositions and Methods For Tissue Repair	Jian Q. Yao Ben Walthall Jizong Gao Victor Zaporojan	4/11/2008 Continuity Data: 12/101,553 PCT/US2008/060078 CA2684040 AU2008240191	1. A method of repairing a tissue defect, the method comprising: a) forming, on a tissue defect, a mold conforming to the contours of at least a portion of the tissue defect;removing the mold from the defect; b) forming in the mold an implant comprising: i) one or more tissue particles and ii) a biocompatible carrier, whereby the implant has a shape substantially conforming to the contours of at least the portion of the tissue defect; c) separating the implant from the mold; and d) applying the implant to at least the portion of the tissue defect.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
404212	CA2684040		Compositions and Methods For Tissue Repair	Jian Q. YaoBen WalthallJizong GaoVictor Zaporojan	4/11/2008Continuity Data:12/101,553PCT/US2008/060078EP2134297AU2008240191	1. A method of repairing a tissue defect, the method comprising: a) forming, on a tissue defect, a mold conforming to the contours of at least a portion of the tissue defect; removing the mold from the defect;b) forming in the mold an implant comprising: i) one or more tissue particles and ii) a biocompatible carrier, whereby the implant has a shape substantially conforming to the contours of at least the portion of the tissue defect; c) separating the implant from the mold;	TRANSFERRED TO ZIMMER- grant-back license to ISTO

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
						and d) applying the implant to at least the portion of the tissue defect.	
404339	AU2008240191		Compositions and Methods For Tissue Repair	Jian Q. Yao Ben Walthall Jizong Gao Victor Zaporojan	Continuity Data: 12/101,553 PCT/US2008/060078 EP2134297 CA2684040	1. A method of repairing a tissue defect, the method comprising: a) forming, on a tissue defect, a mold conforming to the contours of at least a portion of the tissue defect; removing the mold from the defect; b) forming in the mold an implant comprising: i) one or more tissue particles and ii) a biocompatible carrier, whereby the implant has a shape substantially conforming to the contours of at least the portion of the tissue defect; c) separating the implant from the mold; and d) applying the implant to at least the portion of the tissue defect.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
N/A	60/712,004	N/A	Implants and Methods for Repair, Replacement and Treatment of Joint Disease	Cheryl BlanchardGary GageH. Davis Adkisson, IV	Provisional filed8-26-2005Continuity Data:PCT/US2006/3368712/063,291JP2008-505754AAU2005282754EP1916964	1. An implant comprising: cartilage; and a subchondral base comprising at least one trabecular metal component.	TRANSFERRED TO ZIMMER- grant-back license to ISTO

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125634	PCT/US06/033687	WO/2007/025290 3-1-2007	Implants and Methods for Repair, Replacement and Treatment of Joint Disease	Cheryl Blanchard Gary Gage H. Davis Adkisson, IV	PCT filed 8-28-2006 Continuity Data: PCT/US2006/33687 12/063,291 JP2008-505754A AU2005282754 EP1916964	1. An implant comprising: cartilage; and a subchondral base comprising at least one trabecular metal component.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
125634	12/063,291	US2009/0143867	Implants and Methods for Repair, Replacement and Treatment of Joint Disease	Cheryl Blanchard Gary Gage H. Davis Adkisson, IV	US National filed 2-08-2008 Continuity Data: PCT/US2006/33687 JP2008-505754A AU2005282754 EP1916964	Original claim 1-68 have been cancelled. **69. An implant for administering to a patient in need of treatment for joint disease, defect or injury, the implant comprising: minced juvenile cartilage tissue from a human cadaveric donor; and a subchondral base comprising at least one trabecular metal.**	TRANSFERRED TO ZIMMER- grant-back license to ISTO
125631	JP2008-528250	2009-505754APublished 2-12-2009	Implants and Methods for Repair, Replacement and Treatment of Joint Disease	Cheryl BlanchardGary GageH. Davis Adkisson, IV	JP filed 2-8-2008Continuity Data:PCT/US2006/3368712/063,291 AU2005282754EP1916964	1. An implant comprising: cartilage; and a subchondral base comprising at least one trabecular metal component.	TRANSFERRED TO ZIMMER- grant-back license to ISTO

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125633	AU2006282754		Implants and Methods for Repair, Replacement and Treatment of Joint Disease	Cheryl BlanchardGary GageH. Davis Adkisson, IV	AU filed 2-12-2008Continuity Data:PCT/US2006/3368712/063,291JP2008-505754AEP1916964	1. An implant comprising: cartilage; and a subchondral base comprising at least one trabecular metal component.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
125632	EP06813900.5	EP1916964 5-7-2008	Implants and Methods for Repair, Replacement and Treatment of Joint Disease	Cheryl Blanchard Gary Gage H. Davis Adkisson, IV	EP filed 2-15-2008 Continuity Data: PCT/US2006/33687 12/063,291 JP2008-505754A AU2005282754	1. An implant comprising: cartilage; and a subchondral base comprising at least one trabecular metal component.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
125612 #6	60/528,865	N/A	Particulate Cartilage System	Neil Kizer Robert Spiro	Provisional Filed 12-11-2003 Continuity Data: 11/010,779 PCT/US04/41591 EP1691727	1. A composition comprising a cartilage matrix of neocartilage or juvenile cartilage particles, or a combination thereof; and a biocompatible chondro-conductive/inductive matrix.	TRANSFERRED TO ZIMMER- grant-back license to ISTO

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
125612	11/010,779	Issued 7,824,71111-2-2010US2005-01528827-14-2005	Particulate Cartilage System	Neil KizerRobert SpiroJian Q. Yao	Non-Provisional filed 12-13-2004Continuity Data:PCT/US04/41591EP1691727	(Issued Claim) 1. A composition comprising a cartilage-growth enhancing material comprising minced juvenile cartilage particles and a matrix.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
125612(#7)	PCT/US04/41591	WO/2005/058207 6-30-2005	Particulate Cartilage System		PCT filed 12-13-2004 Continuity Data: 11/010,779 EP1691727	1. A composition comprising a cartilage-growth enhancing material selected from the group consisting of at least one juvenile cartilage particle, at least one neocartilage particle, a combination thereof, and any of the above together with an associated matrix.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
125611	EP04813849.9	EP1691727 8-23-2006	Particulate Cartilage System	Neil Kizer Robert Spiro Jian Q. Yao Cheryl Blanchard	EP filed 12-13-2004 Continuity Data: 11/010,779 PCT/US04/41591	1. A composition comprising a cartilage-growth enhancing material selected from the group consisting of at least one juvenile cartilage particle, at least one neocartilage particle, a combination thereof, and any of the above together with an associated matrix.	TRANSFERRED TO ZIMMER- grant-back license to ISTO

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
421683	12/976,704	NA	CON Particulate Cartilage System	Neil Kizer Robert Spiro Jian Yao	12/22/2010	1. A cartilage treatment kit comprising: cadaveric, allogenic human juvenile cartilage particles including viable chondrocytes; a biocompatible storage solution; and a sealed, sterile container in which the cartilage particles and storage solution are disposed.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
418892	12/861,404	US 2010-0322994Published 12-23-10	CON Particulate Cartilage System	Neil KizerRobert SpiroJian Yao	8/23/2010	1-141 Cancelled142. A composition comprising minced juvenile cartilage particles.	TRANSFERRED TO ZIMMER- grant-back license to ISTO

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
421682	12/976,711	US2012-0009224 Published 1-12-12	CON Particulate Cartilage Treatment Composition	Neil Kizer Robert Spiro Jian Yao	12/22/2010	Claim 1. A cartilage treatment composition comprising: cadaveric, allogenic human juvenile cartilage particles including viable chondrocytes; and a matrix, wherein the matrix is defined as a chondro-conductive media.	TRANSFERRED TO ZIMMER- grant-back license to ISTO

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
421681	12/976,689	US 2012-0009270Published 1-12-12	CON Treatment Methods Using Particulate Cartilage System	Neil KizerRobert SpiroJian Yao	12/22/2010	Claim 1: A method of treating a cartilage defect, comprising: implanting cadaveric, allogenic human juvenile cartilage particles including viable chondrocytes into the defect; and depositing a chondro-conductive matrix into the defect.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
423514	11154747.7	NA	DIV Particulate Cartilage System Particulate Cartilage Composition	Neil Kizer Robert Spiro Jian Yao		1. A cartilage treatment composition comprising: cadaveric, allogenic human cartilage particles from a human donor less than fifteen years of age at the time of donation including viable chondrocytes; and a matrix, wherein the matrix is defined as a chondroconductive media.	TRANSFERRED TO ZIMMER- grant-back license to ISTO

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
423518	11154746.9	NA	DIV Particulate Cartilage System Treatment Kit	Neil Kizer Robert Spiro Jian Yao		1. A cartilage treatment kit comprising: cadaveric, allogenic human juvenile cartilage particles including viable chondrocytes; a biocompatible storage solution; and a sealed, sterile container in which the cartilage particles and storage solution are disposed.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
423516	11154748.5	NA	DIV Particulate Cartilage System	Neil Kizer Robert Spiro Jian Yao		1. A composition comprising cartilage particles derived from a human donor less than fifteen years of age at the time of donation, wherein the cartilage particles are disrupted from a continuous cartilaginous tissue of cultured donor chondrocytes.	TRANSFERRED TO ZIMMER- grant-back license to ISTO

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
434776	13/327,238		CON Cartilage Implant	Neil KizerRobert SpiroJian YaoCheryl Blanchard		1. A cartilage implant, comprising: human juvenile cartilage particles including viable chondrocytes; a first matrix comprising a biocompatible adhesive or sealant; anda second matrix comprising collagen, polylactic acid or polyglycolic acid.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
434777	13/327,286		CON APPARATUS FOR FORMING AN IMPLANT	Jian Q. YaoBen WalthallJizong GaoVictor Zaporojan		1. An apparatus for forming a cartilage implant, comprising:a pliable substrate shapeable to substantially conform to the contours of a cartilage defect;human juvenile cartilage particles including viable chondrocytes; anda biocompatible carrier.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
434778	13/327,265		CON METHOD OF TREATING AN OSTEOCHONDRAL DEFECT	Neil Kizer Robert Spiro Jian Yao Cheryl Blanchard		1. A method of treating an ostechondral defect, comprising: disposing an osteo-conductive matrix in the defect; implanting cadaveric, allogenic human juvenile cartilage particles including viable chondrocytes into the defect; and depositing a chondro-conductive matrix into the defect.	TRANSFERRED TO ZIMMER- grant-back license to ISTO

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
425679	61/578,617		PROV SUPPORTS AND METHODS FOR PROMOTING INTEGRATION OF CARTILAGE TISSUE EXPLANTS	Jian Q. Yao Hali Wang	12/21/2011	1. A support for preparing a cartilage composition from a plurality of cartilage tissue pieces, the support comprising a biocompatible material having a surface defining a plurality of tissue anchors separated by a distance sufficient to secure the plurality of tissue pieces to the support at an inter-piece distance of 1 mm or less.	TRANSFERRED TO ZIMMER- grant-back license to ISTO
434937	61/566,922		PROV Methods For Promoting Extracellular Matrix Production	Inventor not decided yet	12/5/2011	1. A method for promoting extracellular matrix (ECM) production by cartilage tissue fragments, comprising: combining an amount of juvenile cartilage fragments with an amount of adult cartilage fragments; and maintaining the combined juvenile and adult cartilage fragments for a time and under conditions sufficient for production of ECM components by the juvenile or adult cartilage fragments.	TRANSFERRED TO ZIMMER- grant-back license to ISTO

ISTO – PATENTS LICENSED FROM BARNES JEWISH HOSPITAL

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
	09/054,913	6,235,316	NEOCARTILAGE AND METHODS OF USE	Houston D. Adkisson	Filed April 3, 1998 Cont: 09/467,520 filed Dec 21, 1999 Cont: 10/413,000 filed Apr 14, 2003		Granted *Assigned to Barnes-Jewish Hospital reel/frame: 009334/0008 *Security interest from ISTO Technologies, Inc. to Zimmer, Inc. recorded 2/12/12 at Reel/Frame: 012607/0255 *Intellectual Property Covenant Not to Sue Agreement from ISTO Technologies, Inc. to Zimmer, Inc. recorded 3/14/13 at Reel/Frame: 029993/0019

Polsinelli Matter No	Application No.	Publication No. and date	Title	Inventors	Priority Claims	Exemplary Claim	Status
	09/467,520	6,645,764	NEOCARTILAGE AND METHODS OF USE	Huston D. ADKISSON	Filed Dec 21, 1999 Divisional of 09/054,913		Granted Assignee: Barnes-Jewish Hospital *Security interest from ISTO Technologies, Inc. to Zimmer, Inc. recorded 2/12/12 at Reel/Frame: 012607/0255 *Intellectual Property Covenant Not to Sue Agreement from ISTO Technologies, Inc. to Zimmer, Inc. recorded 3/14/13 at Reel/Frame: 029993/0019
	10/413,000	7,087,227 US2003/0224518	CARTILAGE COMPOSITES AND METHODS OF USE	Huston D. ADKISSON, IV	Filed Apr 14, 2003 Cont. of 09/467,520 Div. of 09/054,913		Granted Assignee: Barnes-Jewish Hospital *Intellectual Property Covenant Not to Sue Agreement from ISTO Technologies, Inc. to Zimmer, Inc. recorded 3/14/13 at Reel/Frame: 029993/0019

ISTO - TRADEMARKS

SERIAL NUMBER	REGISTRATION NUMBER	COUNTRY	WORD MARK	STATUS	REGISTRANT
85953086		US	INFLUX TRABECULAR BONE GRAFT	LIVE	ISTO Technologies, Inc.
85921705		US	REVAFLEX	LIVE	ISTO Technologies, Inc.
78664434	3336291	US	INQU	LIVE	ISTO Technologies, Inc.
78088874	2826325	US	ISTO	LIVE	ISTO Technologies, Inc.
77777257	3851270	US	NUQU	LIVE	ISTO Technologies, Inc.
77331610	3466871	US	ISTO	LIVE	ISTO Technologies, Inc.
3891645	3891645	CTM (EU)	ISTO	LIVE	ISTO Technologies, Inc.
1591638		AU	REVAFLEX	LIVE	ISTO Technologies, Inc.
012317996		CTM (EU)	REVAFLEX	LIVE	ISTO Technologies, Inc.
2005 52622	4944834	Japan	ISTO	LIVE	ISTO Technologies, Inc.
86/373,987		US	CELLPOINT	LIVE	ISTO Technologies, Inc.
86/373,992		US	CELLPOINT CONCENTRATED BONE MARROW ASPIRATE SYSTEM & DESIGN	LIVE	ISTO Technologies, Inc.