

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4556939

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	NOTICE OF GRANT OF SECURITY INTEREST IN PATENTS
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
MALLINCKRODT LLC	08/17/2017
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	DEUTSCHE BANK AG NEW YORK BRANCH, AS COLLATERAL AGENT
<b>Street Address:</b>	60 WALL STREET
<b>City:</b>	NEW YORK
<b>State/Country:</b>	NEW YORK
<b>Postal Code:</b>	10005
<b>PROPERTY NUMBERS Total: 17</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	14188582
Application Number:	15046243
Application Number:	15065635
Application Number:	15147621
Application Number:	15162072
Application Number:	15164483
Application Number:	15202670
Application Number:	15235312
Application Number:	15255979
Application Number:	15385812
Application Number:	15417541
Application Number:	15420386
Application Number:	62292463
Application Number:	62315952
Application Number:	62418950
Application Number:	62431524
Application Number:	15054739
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(213)452-2329
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent</i>	
<b>PATENT</b>	

*using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.*

**Phone:** 2136207848  
**Email:** iprecordations@whitecase.com  
**Correspondent Name:** JUSTINE LU/WHITE & CASE LLP  
**Address Line 1:** 555 SOUTH FLOWER STREET, 2700  
**Address Line 4:** LOS ANGELES, CALIFORNIA 90071

<b>ATTORNEY DOCKET NUMBER:</b>	1111779-2453-S216
<b>NAME OF SUBMITTER:</b>	JUSTINE LU
<b>SIGNATURE:</b>	/Justine Lu/
<b>DATE SIGNED:</b>	08/18/2017

**Total Attachments: 15**

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**Notice of Grant of Security Interest in Patents**

NOTICE OF GRANT OF SECURITY INTEREST IN PATENTS, dated as of August 17, 2017 (this “*Agreement*”), made by MALLINCKRODT LLC, a Delaware limited liability company, MALLINCKRODT ARD IP LIMITED, an Ireland private limited company, MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED, an Ireland private limited company, MALLINCKRODT IP UNLIMITED COMPANY, an Ireland unlimited company, MALLINCKRODT PHARMA IP TRADING DESIGNATED ACTIVITY COMPANY, an Ireland designated activity company, STRATATECH CORPORATION, Delaware corporation (collectively, the “*Pledgors*”), in favor of DEUTSCHE BANK AG NEW YORK BRANCH, as Collateral Agent (as defined below).

Reference is made to the U.S. Collateral Agreement dated as of March 19, 2014 (as amended, restated, supplemented or otherwise modified from time to time, the “*U.S. Collateral Agreement*”), among Mallinckrodt International Finance S.A., a public limited liability company (*société anonyme*) incorporated under the laws of the Grand Duchy of Luxembourg, having its registered office at 124, Boulevard de la Pétrusse, L-2330, Luxembourg, and registered with the Luxembourg Trade and Companies Register (*R.C.S Luxembourg*) under number B 172.865 (the “*Lux Borrower*”), MALLINCKRODT CB LLC (the “*Co-Borrower*”, and together with the Lux Borrower, the “*Borrowers*”), Mallinckrodt Finance GmbH (the “*Swiss Finco*”), each other Subsidiary Loan Party listed on the signature pages thereof and each other Subsidiary Loan Party that becomes a party thereto after the date thereof and DEUTSCHE BANK AG NEW YORK BRANCH, as collateral agent (together with its successors and assigns in such capacity, the “*Collateral Agent*”) for the Secured Parties (as defined therein). The parties hereto agree as follows:

SECTION 1. *Terms*. Capitalized terms used in this Agreement and not otherwise defined herein have the meanings specified in the U.S. Collateral Agreement. The rules of construction specified in Section 1.01(b) of the U.S. Collateral Agreement also apply to this Agreement.

SECTION 2. *Grant of Security Interest*. As security for the payment and performance, as applicable, in full of its Secured Obligations, each Pledgor pursuant to the U.S. Collateral Agreement did, and hereby does, assign and pledge to the Collateral Agent, its successors and permitted assigns, for the benefit of the Secured Parties, a continuing security interest in all of such Pledgor’s right, title and interest in, to and under any and all of the following assets now owned or at any time hereafter acquired by such Pledgor or in which such Pledgor now has or at any time in the future may acquire any right, title or interest (collectively, but excluding any Excluded Property, the “IP Collateral”):

all Patents of the United States of America, including those listed on Schedule I;

SECTION 3. *U.S. Collateral Agreement*. The security interests granted to the Collateral Agent herein are granted in furtherance, and not in limitation of, the security interests granted to the Collateral Agent pursuant to the U.S. Collateral Agreement. Each Pledgor hereby acknowledges and affirms that the rights and remedies of the Collateral Agent with respect to the IP Collateral are more fully set forth in the U.S. Collateral Agreement, the terms and provisions of which are hereby incorporated herein by reference as if fully

set forth herein. In the event of any conflict between the terms of this Agreement and the U.S. Collateral Agreement, the terms of the U.S. Collateral Agreement shall govern.

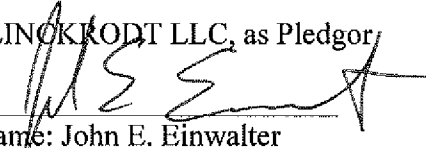
SECTION 4. *Counterparts.* This Agreement may be executed in two or more counterparts, each of which shall constitute an original but all of which when taken together shall constitute but one contract. Delivery of an executed counterpart to this Agreement by facsimile or other electronic transmission shall be as effective as delivery of a manually signed original.

SECTION 5. *Governing Law.* **THIS AGREEMENT AND ANY CLAIMS, CONTROVERSY, DISPUTE OR CAUSES OF ACTION (WHETHER IN CONTRACT OR TORT OR OTHERWISE) BASED UPON, ARISING OUT OF OR RELATING TO THIS AGREEMENT SHALL BE CONSTRUED IN ACCORDANCE WITH AND GOVERNED BY THE LAWS OF THE STATE OF NEW YORK.**

[Signature Pages Follow]

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement as of the day and year first above written.

MALLINCKRODT LLC, as Pledgor,

By:   
Name: John E. Einwalter  
Title: Vice President & Treasurer

MALLINCKRODT ARD IP LIMITED, as Pledgor

By: \_\_\_\_\_  
Name: Kenneth D. Goetz  
Title: Power of Attorney

MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED, as Pledgor

By: \_\_\_\_\_  
Name: Kenneth D. Goetz  
Title: Power of Attorney

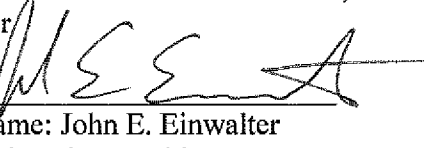
MALLINCKRODT IP UNLIMITED COMPANY, as Pledgor

By: \_\_\_\_\_  
Name: Kenneth D. Goetz  
Title: Power of Attorney

MALLINCKRODT PHARMA IP TRADING D.A.C., as Pledgor

By: \_\_\_\_\_  
Name: Kenneth D. Goetz  
Title: Power of Attorney

STRATATECH CORPORATION, as Pledgor

By:   
Name: John E. Einwalter  
Title: Vice President & Treasurer

*[Signature Page to Notice of Grant of Security Interest in Patents]*

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STRATATECH CORPORATION, as Pledgor

By: \_\_\_\_\_  
Name: John E. Einwalter  
Title: Vice President & Treasurer

*[Signature Page to Notice of Grant of Security Interest in Patents]*

ACCEPTED AND AGREED:

DEUTSCHE BANK AG NEW YORK  
BRANCH,  
as Collateral Agent,

By:   
Name: Marcus Tarkington  
Title: Director

By:   
Name: Anes Trifan  
Title: **Managing Director**

*[Signature Page to Notice of Grant of Security Interest in Patents]*

Schedule I  
to Notice of Grant of Security Interest in Patents

*U.S. Patent Registrations and Applications*

No.	Invention Title	App. No.	App. Date	Reg. No.	Reg. Date	Owner
1.	FUNCTIONALIZED, CROSS-LINKED NANOSTRUCTURES FOR TANDEM OPTICAL IMAGING AND THERAPY	15054739	2/26/2016			MALLINCKRODT LLC/WASH U/TEXAS A&M
2.	ACTH FOR TREATMENT OF AMYOTROPHIC LATERAL SCLEROSIS	15141530	4/28/2016			MALLINCKRODT ARD IP LIMITED
3.	ACTH PROPHYLACTIC TREATMENT OF RENAL DISORDERS	15383969	12/19/2016			MALLINCKRODT ARD IP LIMITED/RHODE ISLAND HOSPITAL
4.	ACTH PROPHYLACTIC TREATMENT OF RENAL DISORDERS	14313903	6/24/2014	9550822	1/24/2017	MALLINCKRODT ARD IP LIMITED/RHODE ISLAND HOSPITAL
5.	SYSTEMS AND METHODS FOR DELIVERY OF THERAPEUTIC GAS TO PATIENTS IN NEED THEREOF USING ENHANCED BREATHING CIRCUIT GAS (BCG) FLOW MEASUREMENT	14672447	3/30/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
6.	SYSTEMS AND METHODS FOR DELIVERY OF THERAPEUTIC GAS TO PATIENTS IN NEED THEREOF USING ENHANCED BREATHING CIRCUIT GAS (BCG) FLOW MEASUREMENT	14674327	3/31/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
7.	SYSTEMS AND METHODS FOR DELIVERY OF THERAPEUTIC GAS TO PATIENTS, IN NEED THEREOF, RECEIVING BREATHING GAS FROM A VENTILATOR THAT VARIES AT LEAST PRESSURE AND/OR FLOW USING ENHANCED THERAPEUTIC GAS (NO) FLOW MEASUREMENT	14700594	4/30/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
8.	SYSTEMS AND METHODS FOR INTELLIGENT GAS SOURCE MANAGEMENT	14709298	5/11/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
9.	ENHANCED PERFORMANCE VERIFICATION FOR THERAPEUTIC GAS DELIVERY	14709308	5/11/2015			MALLINCKRODT HOSPITAL PRODUCTS IP



No.	Invention Title	App. No.	App. Date	Reg. No.	Reg. Date	Owner
						LIMITED
10.	SYSTEMS AND METHODS FOR DELIVERY OF THERAPEUTIC GAS	14709316	5/11/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
11.	SYSTEM AND METHODS FOR INDICATING LIFETIME OF AN NO2-TO-NO REACTOR CARTRIDGE USED TO DELIVER NO FOR INHALATION THERAPY TO A PATIENT	14712419	5/14/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
12.	ENHANCED PERFORMANCE VERIFICATION FOR THERAPEUTIC GAS DELIVERY	PCTUS15 30217	5/11/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
13.	METHOD AND SYSTEM FOR ADJUSTING ROTATION SPEED OF AN EXTRACORPOREAL THERAPEUTIC DEVICE	13615777	9/14/2012			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
14.	CANNULA FOR MINIMIZING DILUTION OF DOSING DURING NITRIC OXIDE DELIVERY	14706449	5/7/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
15.	SYSTEMS AND METHODS FOR MANUFACTURING AND SAFETY OF AN NO2-TO-NO REACTOR CARTRIDGE USED TO DELIVER NO FOR INHALATION THERAPY TO A PATIENT	14744298	6/19/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
16.	NO2 TO NO REACTOR CARTRIDGE WITH IMPROVED CARTRIDGE STRUCTURE AND/OR THAT MAY BE USED WITH CONSTANT AND/OR VARIABLE FLOW VENTILATORS	14750429	6/25/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
17.	USE OF APOPTOTIC CELLS EX VIVO TO GENERATE REGULATORY T CELLS	14863274	9/23/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
18.	SYSTEMS AND METHODS FOR PROVIDING A PULSE OF A THERAPEUTIC GAS WITH A DESIRED FLOW PROFILE TO MAXIMIZE THERAPEUTIC EFFECTIVENESS	14886556	10/19/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
19.	METHOD OF TREATING PATIENTS WITH HEPATORENAL SYNDROME TYPE 1	14920392	10/22/2015			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
20.	GAS DELIVERY DEVICE AND SYSTEM	15001020	1/19/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED

No.	Invention Title	App. No.	App. Date	Reg. No.	Reg. Date	Owner
21.	METHOD AND APPARATUS FOR GENERATING NITRIC OXIDE FOR MEDICAL USE	15008048	1/27/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
22.	SYSTEMS AND METHODS FOR COMPENSATING LONG TERM SENSITIVITY DRIFT OF ELECTROMECHANICAL GAS SENSORS EXPOSED TO NITRIC OXIDE	15010999	1/29/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
23.	PROCESSING BLOOD	15066659	3/10/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
24.	ADMINISTRATION AND MONITORING OF NITRIC OXIDE IN EX VIVO FLUIDS	15066672	3/10/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
25.	METHOD FOR EX-VIVO EXPANSION OF REGULATORY T CELLS WITH ENHANCED SUPPRESSIVE FUNCTION FOR CLINICAL APPLICATION IN IMMUNE MEDIATED DISEASES	15094467	4/8/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
26.	SYSTEM AND METHOD OF ADMINISTERING A PHARMACEUTICAL GAS TO A PATIENT	15167048	5/27/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
27.	METHODS OF USING INHALED NITRIC OXIDE GAS FOR TREATMENT OF ACUTE RESPIRATORY DISTRESS SYNDROME IN CHILDREN	15170130	6/1/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
28.	GAS DELIVERY DEVICE AND SYSTEM	15204176	7/7/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
29.	SYSTEMS AND METHODS FOR COMPENSATING LONG TERM SENSITIVITY DRIFT OF ELECTROMECHANICAL GAS SENSORS EXPOSED TO NITRIC OXIDE	15256053	9/2/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
30.	METHOD AND APPARATUS FOR THE CONTINUOUS SEPARATION OF BIOLOGICAL FLUIDS INTO COMPONENTS	15260118	9/8/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
31.	CENTRIFUGE SYSTEM AND METHOD FOR COMPONENT TRACKING	15261968	9/11/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
32.	SYSTEMS AND METHODS FOR COMPENSATING LONG TERM	15277253	9/27/2016			MALLINCKRODT HOSPITAL

No.	Invention Title	App. No.	App. Date	Reg. No.	Reg. Date	Owner
	SENSITIVITY DRIFT OF ELECTROMECHANICAL GAS SENSORS EXPOSED TO NITRIC OXIDE					PRODUCTS IP LIMITED
33.	SYSTEMS AND METHODS FOR COMPENSATING LONG TERM SENSITIVITY DRIFT OF ELECTROMECHANICAL GAS SENSORS EXPOSED TO NITRIC OXIDE	15281176	9/30/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
34.	DEVICE AND METHOD FOR DIFFUSING HIGH CONCENTRATION NO WITH INHALATION THERAPY GAS	15281512	9/30/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
35.	SYSTEMS AND METHODS FOR COMPENSATING LONG TERM SENSITIVITY DRIFT OF ELECTROMECHANICAL GAS SENSORS EXPOSED TO NITRIC OXIDE	15284611	10/4/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
36.	METHOD OF IDENTIFYING AND TREATING PREMATURE INFANTS AT RISK FOR BPD	15320635	12/20/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
37.	SYSTEMS AND METHODS FOR COMPENSATING LONG TERM SENSITIVITY DRIFT OF ELECTROMECHANICAL GAS SENSORS EXPOSED TO NITRIC OXIDE	15341142	11/2/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
38.	SYSTEMS AND METHODS FOR COMPENSATING LONG TERM SENSITIVITY DRIFT OF ELECTROMECHANICAL GAS SENSORS EXPOSED TO NITRIC OXIDE	15341262	11/2/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
39.	SYSTEMS AND METHODS FOR COMPENSATING LONG TERM SENSITIVITY DRIFT OF ELECTROMECHANICAL GAS SENSORS EXPOSED TO NITRIC OXIDE	15341584	11/2/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
40.	SYSTEMS AND METHODS FOR COMPENSATING LONG TERM SENSITIVITY DRIFT OF ELECTROMECHANICAL GAS SENSORS EXPOSED TO NITRIC OXIDE	15343314	11/4/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
41.	BREATHING APPARATUS DETECTION AND PURGING	15412342	1/23/2017			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED

No.	Invention Title	App. No.	App. Date	Reg. No.	Reg. Date	Owner
42.	CANNULA FOR MINIMIZING DILUTION OF DOSING DURING NITRIC OXIDE DELIVERY	15412348	1/23/2017			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
43.	USE AND MONITORING OF INHALED NITRIC OXIDE WITH LEFT VENTRICULAR ASSIST DEVICES	15418837	1/30/2017			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
44.	COMPENSATING FOR DISRUPTIONS IN BREATHING GAS FLOW MEASUREMENT	15420689	1/31/2017			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
45.	MRI COMPATIBLE THERAPEUTIC GAS INJECTOR MODULE	29578294	9/20/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
46.	MRI COMPATIBLE THERAPEUTIC GAS DELIVERY CART	29578295	9/20/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
47.	APPARATUS AND METHOD FOR FILTERING LIQUID PARTICLES FROM INSPIRATORY GAS FLOW OF A PATIENT BREATHING CIRCUIT AFFILIATED WITH A VENTILATOR AND/OR NITRIC OXIDE DELIVERY SYSTEM	62316663	4/1/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
48.	APPARATUS AND METHOD FOR DETECTING LIQUID LEVEL IN A CLEAR OR PARTIALLY CLEAR CONTAINER	62331117	5/3/2016			MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
49.	MRI COMPATIBLE THERAPEUTIC GAS INJECTOR MODULE	29544067	10/30/2015	D776278	1/10/2017	MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
50.	MRI COMPATIBLE THERAPEUTIC GAS DELIVERY CART	29544072	10/30/2015	D776279	1/10/2017	MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
51.	BREATHING APPARATUS DETECTION AND PURGING	14827523	8/17/2015	9550040	1/24/2017	MALLINCKRODT HOSPITAL PRODUCTS IP LIMITED
52.	REDUCED DOSE INTRAVENOUS ACETAMINOPHEN	15184056	6/16/2016			MALLINCKRODT IP UNLIMITED COMPANY
53.	METHODS OF ALLEVIATING PAIN THROUGH THE ADMINISTRATION OF INTRAVENOUS ACETAMINOPHEN	62352962	6/21/2016			MALLINCKRODT IP UNLIMITED COMPANY
54.	METHODS OF ALLEVIATING PAIN THROUGH THE	62353283	6/22/2016			MALLINCKRODT IP UNLIMITED

No.	Invention Title	App. No.	App. Date	Reg. No.	Reg. Date	Owner
	COADMINISTRATION OF INTRAVENOUS OPIOID AND INTRAVENOUS ACETAMINOPHEN IN SUBJECTS IN NEED THEREOF					COMPANY
55.	COMPOSITIONS COMPRISING AN OPIOID AND AN ADDITIONAL ACTIVE PHARMACEUTICAL INGREDIENT FOR RAPID ONSET AND EXTENDED DURATION OF ANALGESIA THAT MAY BE ADMINISTERED WITHOUT REGARD TO FOOD	14188582	2/24/2014			MALLINCKRODT LLC
56.	MODIFIED DOCETAXEL LIPOSOME FORMULATIONS AND USES THEREOF	15046243	2/17/2016			MALLINCKRODT LLC
57.	COMBINATION PAIN PRODUCT WITH RAPID UPSTROKE AND EXTENDED RELEASE	15065635	3/9/2016			MALLINCKRODT LLC
58.	OPIOID AIDED GASTRO-RETENTION FOR OPTIMAL PERFORMANCE OF EXTENDED RELEASE (ER) FORMULATION WITH THE CONVENIENCE OF ADMINISTRATION IN PRESENCE OR ABSENCE OF FOOD	15147621	5/5/2016			MALLINCKRODT LLC
59.	COMBINATIONAL LIPOSOME COMPOSITIONS FOR CANCER THERAPY	15162072	5/23/2016			MALLINCKRODT LLC
60.	PROCESSES FOR THE LARGE SCALE MANUFACTURE OF SUFENTANIL CITRATE AND SUFENTANIL BASE	15164483	5/25/2016			MALLINCKRODT LLC
61.	THREE STEP PROCESS FOR TAPENTADOL HYDROCHLORIDE	15202670	7/6/2016			MALLINCKRODT LLC
62.	SYNTHESIS OF SUBSTITUTED BERBINES	15235312	8/12/2016			MALLINCKRODT LLC
63.	(+)-MORPHINAN COMPOUNDS AS SMALL MOLECULE ANTAGONISTS OF TOLL-LIKE RECEPTOR 9	15255979	9/2/2016			MALLINCKRODT LLC
64.	COMBINATION COMPOSITION COMPRISING HYDROCODONE AND ACETAMINOPHEN FOR RAPID ONSET AND EXTENDED DURATION OF ANALGESIA	15385812	12/20/2016			MALLINCKRODT LLC
65.	GLUCOMANNAN CONTAINING PHARMACEUTICAL COMPOSITIONS WITH EXTENDED RELEASE AND ABUSE DETERRENT PROPERTIES	15417541	1/27/2017			MALLINCKRODT LLC
66.	COMPOSITIONS AND METHODS FOR PREPARING TAMPER RESISTANT PLATFORMS FOR EXTENDED SOLID DOSAGE	15420386	1/31/2017			MALLINCKRODT LLC

No.	Invention Title	App. No.	App. Date	Reg. No.	Reg. Date	Owner
	FORMS					
67.	GLUCOMANNAN CONTAINING PHARMACEUTICAL COMPOSITIONS WITH EXTENDED RELEASE AND ABUSE DETERRENT PROPERTIES	62292463	2/8/2016			MALLINCKRODT LLC
68.	TAMPER RESISTANT FORMULATIONS FOR ORAL SOLID EXTENDED RELEASE DOSAGE FORMS	62315952	3/31/2016			MALLINCKRODT LLC
69.	LIPOSOMAL TRAPPING OF MITOMYCIN C PRODRUGS WITH GLUTATHIONE	62418950	11/8/2016			MALLINCKRODT LLC
70.	LIPOSOMAL ELINAFIDE	62431524	12/8/2016			MALLINCKRODT LLC
71.	BIOCOMPATABLE PHASE INVERTABLE PROTEINACEOUS COMPOSITIONS AND METHODS FOR MAKING AND USING THE SAME	14804669	7/21/2015			MALLINCKRODT PHARMA IP TRADING D.A.C.
72.	BIOCOMPATABLE PHASE INVERTABLE PROTEINACEOUS COMPOSITIONS AND METHODS FOR MAKING AND USING THE SAME	11877396	10/23/2007	7871639	1/18/2011	MALLINCKRODT PHARMA IP TRADING D.A.C.
73.	THROMBIN COMPOSITIONS	11539276	10/6/2006	7473543	1/6/2009	MALLINCKRODT PHARMA IP TRADING D.A.C.
74.	BIOCOMPATABLE PHASE INVERTABLE PROTEINACEOUS COMPOSITIONS AND METHODS FOR MAKING AND USING THE SAME	12510890	7/28/2009	8349348	1/8/2013	MALLINCKRODT PHARMA IP TRADING D.A.C.
75.	BIOCOMPATABLE PHASE INVERTABLE PROTEINACEOUS COMPOSITIONS AND METHODS FOR MAKING AND USING THE SAME	12757432	4/9/2010	9155815	10/13/2015	MALLINCKRODT PHARMA IP TRADING D.A.C.
76.	BIOCOMPATABLE PHASE INVERTABLE PROTEINACEOUS COMPOSITIONS AND METHODS FOR MAKING AND USING THE SAME	13471746	5/15/2012	8586671	11/19/2013	MALLINCKRODT PHARMA IP TRADING D.A.C.
77.	METHOD FOR ACTIVATING PRETHROMBIN-1	12097027	6/11/2008	8062876	11/22/2011	MALLINCKRODT PHARMA IP TRADING D.A.C.
78.	BIOCOMPATABLE PHASE INVERTABLE PROTEINACEOUS COMPOSITIONS AND METHODS	10635847	8/5/2003	7303757	12/4/2007	MALLINCKRODT PHARMA IP TRADING D.A.C.

No.	Invention Title	App. No.	App. Date	Reg. No.	Reg. Date	Owner
	FOR MAKING AND USING THE SAME					
79.	STABILIZED THROMBIN COMPOSITIONS	12138922	6/13/2008	8071090	12/6/2011	MALLINCKRODT PHARMA IP TRADING D.A.C.
80.	MEDICAL INSTRUMENTS	29339045	6/23/2009	D628692	12/7/2010	MALLINCKRODT PHARMA IP TRADING D.A.C.
81.	POWDER DELIVERY DEVICE	13139781	12/15/2009	9205240	12/8/2015	MALLINCKRODT PHARMA IP TRADING D.A.C.
82.	BIOCOMPATABLE PHASE INVERTABLE PROTEINACEOUS COMPOSITIONS AND METHODS FOR MAKING AND USING THE SAME	12326835	12/2/2008	8198363	6/12/2012	MALLINCKRODT PHARMA IP TRADING D.A.C.
83.	THROMBIN ACTIVATOR COMPOSITIONS AND METHODS OF MAKING AND USING THE SAME	12935235	2/7/2011	8759066	6/24/2014	MALLINCKRODT PHARMA IP TRADING D.A.C.
84.	MEDICAL POWDER DELIVERY INSTRUMENT	29394931	6/23/2011	D683851	6/4/2013	MALLINCKRODT PHARMA IP TRADING D.A.C.
85.	THROMBIN COMPOSITIONS	11157707	6/21/2005	7393674	7/1/2008	MALLINCKRODT PHARMA IP TRADING D.A.C.
86.	TREATMENT OF TISSUE ADHESION	13321954	11/22/2011	9089584	7/28/2015	MALLINCKRODT PHARMA IP TRADING D.A.C.
87.	BIOCOMPATABLE PHASE INVERTABLE PROTEINACEOUS COMPOSITIONS AND METHODS FOR MAKING AND USING THE SAME	12643890	12/21/2009	9101536	8/11/2015	MALLINCKRODT PHARMA IP TRADING D.A.C.
88.	DRY POWDER FIBRIN SEALANT	13322754	11/28/2011	9119897	9/1/2015	MALLINCKRODT PHARMA IP TRADING D.A.C.
89.	DRY POWDER FIBRIN SEALANT	13520632	8/29/2012	8846105	9/30/2014	MALLINCKRODT PHARMA IP TRADING D.A.C.
90.	HEMOSTATIC MICROSPHERES	12935114	2/7/2011			MALLINCKRODT PHARMA IP TRADING D.A.C.
91.	MEDICAL DEVICES FOR DELIVERING FLUIDS DURING SURGERY AND METHODS FOR THEIR USE	12988353	12/30/2010			MALLINCKRODT PHARMA IP TRADING D.A.C.
92.	RECOMBINANT FIBRINOGEN	13002797	4/8/2011			MALLINCKRODT PHARMA IP TRADING D.A.C.
93.	BIODEGRADABLE EXTRAVASCULAR STENT	13147969	10/10/2011			MALLINCKRODT PHARMA IP TRADING D.A.C.

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94.	POWDER DELIVERY DEVICE	13995267	6/18/2013			MALLINCKRODT PHARMA IP TRADING D.A.C.
95.	BIOCOMPATABLE PHASE INVERTABLE PROTEINACEOUS COMPOSITIONS AND METHODS FOR MAKING AND USING THE SAME	14055712	10/16/2013			MALLINCKRODT PHARMA IP TRADING D.A.C.
96.	FORMULATIONS FOR WOUND THERAPY	14131012	2/27/2014			MALLINCKRODT PHARMA IP TRADING D.A.C.
97.	BIOCOMPATABLE PHASE INVERTABLE PROTEINACEOUS COMPOSITIONS AND METHODS FOR MAKING AND USING THE SAME	14178086	2/11/2014			MALLINCKRODT PHARMA IP TRADING D.A.C.
98.	POWDER FORMULATION COMPRISING THROMBIN AND FIBRINOGEN	14773212	9/4/2015			MALLINCKRODT PHARMA IP TRADING D.A.C.
99.	FIBRINOGEN PREPARATIONS ENRICHED IN FIBRINOGEN WITH AN EXTENDED ALPHA CHAIN	14877354	10/7/2015			MALLINCKRODT PHARMA IP TRADING D.A.C.
100.	BIOCOMPATABLE PHASE INVERTABLE PROTEINACEOUS COMPOSITIONS AND METHODS FOR MAKING AND USING THE SAME	15233297	8/10/2016			MALLINCKRODT PHARMA IP TRADING D.A.C.
101.	RECOMBINANT FIBRINOGEN	15331942	10/24/2016			MALLINCKRODT PHARMA IP TRADING D.A.C.
102.	BIODEGRADABLE EXTRAVASCULAR STENT	15400628	1/6/2017			MALLINCKRODT PHARMA IP TRADING D.A.C.
103.	MEDICAL DEVICES FOR DELIVERING FLUIDS DURING SURGERY AND METHODS FOR THEIR USE	15422114	2/1/2017			MALLINCKRODT PHARMA IP TRADING D.A.C.
104.	BIOCOMPATABLE PHASE INVERTABLE PROTEINACEOUS COMPOSITIONS AND METHODS FOR MAKING AND USING THE SAME	14178093	2/11/2014	9440000	9/13/2016	MALLINCKRODT PHARMA IP TRADING D.A.C.
105.	DRY POWDER FIBRIN SEALANT	12636718	12/12/2009			MALLINCKRODT PHARMA IP TRADING D.A.C./QUADRANT DRUG DELIVERY
106.	COLD STORAGE OF ORGANOTYPICALLY CULTURED SKIN EQUIVALENTS FOR CLINICAL APPLICATIONS	15375755	12/12/2016			STRATATECH CORPORATION



No.	Invention Title	App. No.	App. Date	Reg. No.	Reg. Date	Owner
107.	HUMAN SKIN EQUIVALENTS ENGINEERED TO EXPRESS EXOGENOUS ANTIMICROBIAL POLYPEPTIDES	15377316	12/13/2016			STRATATECH CORPORATION
108.	COLD STORAGE OF ORGANOTYPICALLY CULTURED SKIN EQUIVALENTS FOR CLINICAL APPLICATIONS	15377323	12/13/2016			STRATATECH CORPORATION
109.	TISSUE CONTAINER SYSTEMS	62451379	1/27/2017			STRATATECH CORPORATION