

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	RELEASE OF SECURITY INTEREST IN INTELLECTUAL PROPERTY AT REEL/FRAME NO. 050419/0674	
CONVEYING PARTY DATA		
Name		Execution Date
KENNEDY LEWIS INVESTMENT MANAGEMENT LLC, AS COLLATERAL AGENT		05/11/2022
RECEIVING PARTY DATA		
Name:	IMPULSE DYNAMICS N.V.	
Street Address:	SCHOTTEGATWEG OOST	
Internal Address:	UNIT A1K	
City:	CURACAO	
State/Country:	CURACAO	
PROPERTY NUMBERS Total: 97		
Property Type	Number	
Patent Number:	6152882	
Patent Number:	6223072	
Patent Number:	6233484	
Patent Number:	6233487	
Patent Number:	6254610	
Patent Number:	6263242	
Patent Number:	6285906	
Patent Number:	6292693	
Patent Number:	6292704	
Patent Number:	6298268	
Patent Number:	6304777	
Patent Number:	6317631	
Patent Number:	6330476	
Patent Number:	6348045	
Patent Number:	6355538	
Patent Number:	6360123	
Patent Number:	6360126	
Patent Number:	6363279	
Patent Number:	6370430	
Patent Number:	6415178	

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REEL: 060108 FRAME: 0063

Property Type	Number
Patent Number:	6424866
Patent Number:	6442424
Patent Number:	6459928
Patent Number:	6463324
Patent Number:	6480737
Patent Number:	6522904
Patent Number:	6529778
Patent Number:	6587721
Patent Number:	6597952
Patent Number:	6602183
Patent Number:	6662055
Patent Number:	6675043
Patent Number:	6725093
Patent Number:	6749600
Patent Number:	6973347
Patent Number:	6993385
Patent Number:	7027863
Patent Number:	7062318
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Patent Number:	7167748
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Patent Number:	7187970
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Patent Number:	7218963
Patent Number:	7310555
Patent Number:	7412289
Patent Number:	7460907
Patent Number:	7647102
Patent Number:	7840262
Patent Number:	7953481
Patent Number:	7966067
Patent Number:	8014858
Patent Number:	8260416
Patent Number:	8301247
Patent Number:	8306616
Patent Number:	8306617
Patent Number:	8311629

Property Type	Number
Patent Number:	8321013
Patent Number:	8326416
Patent Number:	8352031
Patent Number:	8406864
Patent Number:	8548583
Patent Number:	8655444
Patent Number:	8706230
Patent Number:	8825152
Patent Number:	8901878
Patent Number:	8958872
Patent Number:	8977353
Patent Number:	9186514
Patent Number:	9289618
Patent Number:	9320886
Patent Number:	9440080
Patent Number:	9713723
Patent Number:	9931503
Patent Number:	9956390
Patent Number:	10188866
Patent Number:	7191000
Patent Number:	7177681
Patent Number:	9265950
Patent Number:	6640135
Patent Number:	7292887
Patent Number:	8090442
Patent Number:	8560067
Patent Number:	6748271
Patent Number:	8498703
Patent Number:	8024040
Application Number:	15942637
Application Number:	15249506
Application Number:	62683677
Application Number:	62795612
Application Number:	16232088
Application Number:	16257125
Application Number:	62816982
Application Number:	14941791
Application Number:	62183848

Property Type	Number
Application Number:	11673699

CORRESPONDENCE DATA

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NAME OF SUBMITTER:	KRISTIN J AZCONA
SIGNATURE:	/KJA/
DATE SIGNED:	05/18/2022

Total Attachments: 10

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RELEASE OF SECURITY INTEREST IN INTELLECTUAL PROPERTY

THIS RELEASE OF SECURITY INTEREST IN INTELLECTUAL PROPERTY dated as of May 11, 2022 (this “**Release**”) is made by Kennedy Lewis Investment Management LLC, as Collateral Agent (together with its successors and assigns in such capacity, the “**Collateral Agent**”), in favor of Impulse Dynamics N.V. (individually and collectively, the “**Grantor**”) in respect of that certain Intellectual Property Security Agreement dated as of April 24, 2019 (as amended, restated or otherwise modified from time to time, the “**IP Security Agreement**”) by and among the Collateral Agent and the Grantor and recorded with the United States Patent and Trademark Office on April 26, 2019 at Reel/Frame No. 050419/0674. All capitalized terms used herein without definition shall have the meaning given in the IP Security Agreement.

WHEREAS, pursuant to the IP Security Agreement, the Grantor granted to the Collateral Agent a security interest in the Intellectual Property Collateral (as defined in the IP Security Agreement), including but not limited to the intellectual property listed on the attached Exhibit A.

WHEREAS, the Collateral Agent wishes to: (i) release and terminate all of its security interest in the Intellectual Property Collateral; (ii) restore all right, title and interest in and to the Intellectual Property Collateral to the applicable Grantors; and (iii) terminate any and all liens and encumbrances respecting the Intellectual Property Collateral under the IP Security Agreement.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, the Collateral Agent does hereby (i) terminate the IP Security Agreement in its entirety (except for any definition incorporated by reference in this Release) and (ii) release and terminate its security interest in the Intellectual Property Collateral, including the intellectual property listed on the attached Exhibit A, and discharge, quit claim and relinquish unto the Grantor (in each case without recourse and without any representation or warranty) any and all right, title and interest it has in and to the Intellectual Property Collateral, including the intellectual property set forth on Exhibit A hereto, together with the goodwill of the business symbolized thereby, and all proceeds and rights to proceeds associated therewith, under the IP Security Agreement.

The Collateral Agent authorizes the Register of Copyrights, the Commissioner of Patents and Trademarks and any other applicable government officer to record this Release to reflect the release of security interests and reassignment of any interests with respect to the Intellectual Property Collateral.

This Release shall be governed by, and construed and interpreted in accordance with, the internal laws of the State of New York.

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IN WITNESS WHEREOF, the Administrative Agent has caused this Release to be duly executed and delivered by its officer thereunto duly authorized as of the day and year first above written.

**Kennedy Lewis Investment Management
LLC,**
as Administrative Agent

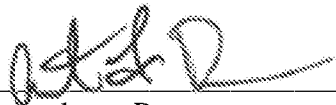
By: 
Name: Anthony Pasqua
Title: COO

EXHIBIT A

PATENTS

(See attached.)

Reference	Official Title	Company	Country Name	Application No.	Registration No.	Filing Date	Registration Date	Expiration Date
*GDT 105 US CON	Cardiac rhythm management system for edema	Impulse Dynamics N.V.	United States of America	10/411,795	7,177,681	2003-04-11	2007-02-13	
54 US 1	Braided Splittable Catheter Sheath	Impulse Dynamics N.V.	United States of America	09/713,538	6,749,600	2000-11-15	2004-06-15	2020-04-15
43 US	ANTI-ARRHYTHMIC DEVICE AND A METHOD OF DELIVERING ANTI-ARRHYTHMIC CARDIAC THERAPY	Impulse Dynamics N.V.	United States of America	10/111,512	7,953,481	2000-10-25	2011-05-31	2022-07-05
41 US	CARDIAC CONTRACTILITY MODULATION DEVICE HAVING ANTI-ARRHYTHMIC CAPABILITIES AND A METHOD	Impulse Dynamics N.V.	United States of America	10/111,515	6,993,385	2000-10-24	2006-01-31	2022-03-04
51 US	Enhanced Suction-Based Cardiac Mechanical Stabilizer	Impulse Dynamics N.V.	United States of America	09/624,089	6602183	2000-07-24	2003-08-05	2020-07-24
30 US	DRUG DELIVERY DEVICE	Impulse Dynamics N.V.	United States of America	09/980,908	7,190,997	2000-06-04	2007-03-13	2021-04-14
28 US	Shockless defibrillation	Impulse Dynamics N.V.	United States of America	09/980,748	8014858	2000-05-25	2011-09-06	2020-05-25
52 US	Local cardiac motion control using applied electrical signals and mechanical force	Impulse Dynamics N.V.	United States of America	09/979,937	6973347	2000-05-25	2005-12-06	2019-05-26
90A US CON	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	15/942,637		2018-04-02		
90B US CON3	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	15/249,506		2016-08-29		
M-STK/US	Simple Control of Complex Bio-Implants	Impulse Dynamics N.V.	United States of America	15/190,451	10,188,866	2016-06-23	2019-01-29	2036-06-28
108 US CON 2	IMPLANTABLE LEAD CONNECTOR	Impulse Dynamics N.V.	United States of America	15136933	9,956,390	2016-04-24	2018-05-01	2030-04-23
74A US DIV	Apparatus & Method for Delivering Electrical Signals to Modify Gene Expression in Cardiac Tissue	Impulse Dynamics N.V.	United States of America	12/910,943	8,326,416	2010-10-25	2012-12-04	2024-03-10
108 US NP	IMPLANTABLE LEAD CONNECTOR	Impulse Dynamics N.V.	United States of America	13/265,874	8,706,230	2010-04-23	2014-04-22	2031-04-06
81 US	TRANSCUTANEOUS CHARGING DEVICE	Impulse Dynamics N.V.	United States of America	12/155,448	8,901,878	2008-06-04	2014-12-02	2032-02-23
01 US CON 10	ELECTRICAL MUSCLE CONTROLLER	Impulse Dynamics N.V.	United States of America	11/932,149	8,260,416	2007-10-31	2012-09-04	2019-11-19
90C US	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	11/802,685	8,352,031	2007-05-24	2013-01-08	2025-12-15
***40A US CON (I-D)	SIGNAL DELIVERY THROUGH THE RIGHT VENTRICULAR SEPTUM	Impulse Dynamics N.V.	United States of America	11/673,812	9,713,723	2007-02-12	2017-07-25	2020-05-15
99 US	ASSESSING CARDIAC ACTIVITY	Impulse Dynamics N.V.	United States of America	12/223,651	8,406,864	2007-02-04	2013-03-26	2030-03-30
01 US CON 6	ELECTRICAL MUSCLE CONTROLLER	Impulse Dynamics N.V.	United States of America	11/550,560	8,311,629	2006-10-18	2012-11-13	2019-11-16

98 US	APPARATUS AND METHOD FOR DELIVERING ELECTRICAL SIGNALS TO A HEART	Impulse Dynamics N.V.	United States of America	11/991,481	7,966,067	2006-09-06	2011-06-21	2028-02-29
90B US	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	11/919,491	8,548,583	2006-05-04	2013-10-01	2026-10-10
90A US	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	11/792,811	9,931,503	2005-12-09	2018-04-03	2033-03-26
41 US CON	CARDIAC CONTRACTILITY MODULATION DEVICE HAVING ANTI-ARRHYTHMIC CAPABILITIES AND METHOD OF OPERATING THEREOF	Impulse Dynamics N.V.	United States of America	11/283,401	7,647,102	2005-11-18	2010-01-12	2021-06-07
13 US CON	Regulation of excitable tissue control of the heart based on physiological input	Impulse Dynamics N.V.	United States of America	10/800,169	7310555	2004-03-10	2007-12-18	2019-11-04
74 US	APPARATUS AND METHOD FOR DELIVERING ELECTRICAL SIGNALS TO MODIFY GENE EXPRESSION IN CARDIAC TISSUE	Impulse Dynamics N.V.	United States of America	10/549,216	7,940,262	2004-03-10	2010-11-23	2025-05-15
01 US CON2-Reexam	Re-Examination Of US Patent No. 6,330,476 ELECTRICAL MUSCLE CONTROLLER USING A NON-EXCITATORY ELECTRIC FIELD	Impulse Dynamics N.V.	United States of America	95/000,032	6,330,476 C1	2003-12-31	2009-09-08	
01 US CON 3	Heart activity control apparatus using synchronized non-excitatory pre-stimulation	Impulse Dynamics N.V.	United States of America	10/039,845	9,289,618	2001-10-23	2016-03-22	2021-02-16
13 US	Regulation of excitable tissue control of the heart based on physiological input	Impulse Dynamics N.V.	United States of America	09/831,100	6725093	2001-09-10	2004-04-20	2019-11-04
44 US	DEVICE FOR CARDIAC THERAPY	Impulse Dynamics N.V.	United States of America	10/111,516	7,027,863	2001-05-10	2006-04-11	2021-07-18
09 US	MULTI-ELECTRODE LEAD	Impulse Dynamics N.V.	United States of America	09/849,637	7,412,289	2001-05-04	2008-08-12	2019-11-04
55 US	Method and Device for Inserting Leads into Coronary veins	Impulse Dynamics N.V.	United States of America	10/257,722	7195637	2001-04-17	2007-03-27	2022-11-20
24A US CON	APPARATUS AND METHOD FOR SETTING THE PARAMETERS OF AN ALERT WINDOW USED FOR TIMING THE DELIVERY OF ETC SIGNALS TO A HEART UNDER VARYING CARDIAC CONDITIONS	Impulse Dynamics N.V.	United States of America	09/782,347	6,597,952	2001-02-12	2003-07-22	2019-07-17
24 US CON	APPARATUS AND METHOD FOR COLLECTING DATA USEFUL FOR DETERMINING THE PARAMETERS OF AN ALERT WINDOW FOR TIMING DELIVERY OF ETC SIGNALS TO A HEART UNDER VARYING CARDIAC CONDITIONS	Impulse Dynamics N.V.	United States of America	09/768,968	6,459,928	2001-01-24	2002-10-01	2019-06-08
49 US	FIELD DELIVERY SAFETY SYSTEM USING DETECTION OF ATYPICAL ECG	Impulse Dynamics N.V.	United States of America	09/914,547	6,480,737	2000-12-28	2002-11-12	2020-12-28
37 US	Fluid Phase Electrode Lead	Impulse Dynamics N.V.	United States of America	09/736974	6529778	2000-12-14	2003-03-04	2020-12-04
30B US	DRUG DELIVERY DEVICE	Impulse Dynamics N.V.	United States of America	10/048,802	7,092,753	2000-12-14	2006-08-15	2022-05-27
30A US	DRUG DELIVERY DEVICES	Impulse Dynamics N.V.	United States of America	10/048,803	7,171,263	2000-12-13	2007-01-30	2021-04-14
18 US	Multi-electrode intravascular lead	Impulse Dynamics N.V.	United States of America	09/459,289	6662055	1999-12-17	2003-12-09	2019-12-17
12 US	Sensor based regulation of excitable tissue control of the heart	Impulse Dynamics N.V.	United States of America	09/831,283	6,675,043	1999-11-04	2004-01-06	2019-11-04
14 US	TRIGGER-BASED REGULATION OF EXCITABLE TISSUE CONTROL OF THE HEART	Impulse Dynamics N.V.	United States of America	09/831,282	6587721	1999-11-04	2003-07-01	2019-11-04
29 US	High Capacitance Myocardial Electrodes	Impulse Dynamics N.V.	United States of America	09/384,834	6,292,704	1999-08-27	2001-09-18	2019-08-27

25 US	APPARATUS AND METHOD FOR DETERMINING A MECHANICAL PROPERTY OF AN ORGAN OR BODY CAVITY BY IMPEDANCE DETERMINATION	Impulse Dynamics N.V.	United States of America	09/382,269	6,360,123	1999-08-24	2002-03-19	2019-08-24
23 US 1	APPARATUS AND METHOD FOR CONTROLLING THE DELIVERY OF CONTRACTILITY MODULATING NON-EXCITATORY SIGNALS TO THE HEART	Impulse Dynamics N.V.	United States of America	09/378,776	6,360,126	1999-08-20	2002-03-19	2019-08-20
34 US	Electro Optically Driven Solid State Relay System	Impulse Dynamics N.V.	United States of America	09/359,684	6,355,538	1999-07-23	2002-01-01	2019-07-23
10 US	Pacing with hemodynamic enhancement	Impulse Dynamics N.V.	United States of America	09/720,639	7,460,907	1999-07-18	2008-12-02	2019-07-18
33 US	Catheter with Distal End Engaging Means	Impulse Dynamics N.V.	United States of America	09/351,726	6,348,045	1999-07-12	2002-02-19	2019-07-12
24A US	APPARATUS AND METHOD FOR SETTING THE PARAMETERS OF AN ALERT WINDOW USED FOR TIMING THE DELIVERY OF ETC SIGNALS TO A HEART UNDER VARYING CARDIAC CONDITIONS	Impulse Dynamics N.V.	United States of America	09/338,649	6,233,487	1999-06-23	2001-05-15	2019-06-08
24 US 1	APPARATUS AND METHOD FOR COLLECTING DATA USEFUL FOR DETERMINING THE PARAMETERS OF AN ALERT WINDOW FOR TIMING DELIVERY OF ETC. SIGNALS TO A HEART UNDER VARYING CARDIAC CONDITIONS	Impulse Dynamics N.V.	United States of America	09/328,068	6,223,072	1999-06-08	2001-04-24	2019-06-08
15 US 1	Local cardiac motion control using applied electrical signals	Impulse Dynamics N.V.	United States of America	09/320,090	6,442,424	1999-05-26	2002-08-27	2019-05-26
16 US 1	Induction of Cardioplegia using Applied Electrical Signals	Impulse Dynamics N.V.	United States of America	09/320,091	6,304,777	1999-05-26	2001-10-16	2019-05-26
17 US 1	Muscle contraction assist device	Impulse Dynamics N.V.	United States of America	09/320,089	6,285,906	1999-05-26	2001-09-04	2019-05-26
21 US 1	Method and Device for Dragging and Positioning a member within a duct in a body	Impulse Dynamics N.V.	United States of America	09/317,589	6,254,610	1999-05-24	2001-07-03	2019-05-24
90B US CON2	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	14/641,480	9,440,080	2015-03-09	2016-09-13	2024-03-10
108 US CON	IMPLANTABLE LEAD CONNECTOR	Impulse Dynamics N.V.	United States of America	14/254,945	9,320,886	2014-04-17	2016-04-26	2030-04-23
90B US CON	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	13/970,647	8,977,353	2013-08-20	2015-03-10	2026-05-04
01 US CON 13	ELECTRICAL MUSCLE CONTROLLER	Impulse Dynamics N.V.	United States of America	14/621,988	9,186,514	2015-02-13	2015-11-17	2017-01-08
01 US CON 12	ELECTRICAL MUSCLE CONTROLLER	Impulse Dynamics N.V.	United States of America	14/181,900	8,958,872	2014-02-17	2015-02-17	2017-01-08
01 US CON 11	ELECTRICAL MUSCLE CONTROLLER	Impulse Dynamics N.V.	United States of America	13/662,775	8,655,444	2012-10-29	2014-02-18	2017-01-08
01 US CON 7	Heart activity control apparatus using synchronized non-excitatory pre-stimulation	Impulse Dynamics N.V.	United States of America	11/931,724	8,306,616	2007-10-31	2012-11-06	2018-12-22
01 US CON 9	Heart activity control apparatus using synchronized non-excitatory pre-stimulation	Impulse Dynamics N.V.	United States of America	11/932,064	8,306,617	2007-10-31	2012-11-06	2018-02-13
01 US CON 8	ELECTRICAL MUSCLE CONTROLLER	Impulse Dynamics N.V.	United States of America	11/931,889	8,301,247	2007-10-31	2012-10-30	2017-06-12
***10A US CIP (I-D)	Pacing with hemodynamic enhancement	Impulse Dynamics N.V.	United States of America	11/933,168	8,321,013	2007-10-31	2012-11-27	2017-12-07
01 US-Reexam	Re-Examination of US Patent No. 6,317,631 CONTROLLING HEART PERFORMANCE USING A NON-EXCITATORY ELECTRIC FIELD	Impulse Dynamics N.V.	United States of America	90/008,689	6,317,631 C1	2007-08-20	2009-06-23	2016-02-01
01 US CON-Reexam	Re-Examination of US Patent No. 6,363,279 ELECTRICAL MUSCLE CONTROLLER	Impulse Dynamics N.V.	United States of America	90/008,688	6,363,279 C1	2007-08-20	2009-07-14	2017-01-08
03 US-Reexam	DRUG-DEVICE COMBINATION FOR CONTROLLING THE CONTRACTILITY OF MUSCLES	Impulse Dynamics N.V.	United States of America	90/008,707	6,236,887 C1	2007-06-13	2009-06-23	2017-07-09
07-US Reexam	Cardiac Output Enhanced Pacemaker	Impulse Dynamics N.V.	United States of America	90/008,312	6,463,324 C1	2006-11-01	2008-04-29	2017-07-09
01 US CON 5	ELECTRICAL MUSCLE CONTROLLER	Impulse Dynamics N.V.	United States of America	10/866,213	7,167,748	2004-06-10	2007-01-23	2017-01-08
06-US-Reexam	Cardiac Output Controller	Impulse Dynamics N.V.	United States of America	90/006,788	6,298,268 C1	2003-10-10	2006-03-07	2017-07-09
40A US	Signal delivery through the right ventricular septum	Impulse Dynamics N.V.	United States of America	10/672,385	7,187,970	2003-09-26	2007-03-06	2016-02-01
04 US CON	FENCING OF CARDIAC MUSCLES	Impulse Dynamics N.V.	United States of America	10/188,726	7,218,963	2002-07-02	2007-05-15	2017-07-09
38 US	MODULATION OF INTRACELLULAR CALCIUM CONCENTRATION USING NON-EXCITATORY ELECTRICAL SIGNALS APPLIED TO THE TISSUE	Impulse Dynamics N.V.	United States of America	10/116,201	8,825,152	2002-04-03	2014-09-02	2016-02-01
01 US CON 4	ELECTRICAL MUSCLE CONTROLLER	Impulse Dynamics N.V.	United States of America	10/001,710	7,062,318	2001-10-31	2006-06-13	2017-01-08
26 US CON	APPARATUS AND METHOD FOR TIMING THE DELIVERY OF NON-EXCITATORY ETC SIGNALS TO A HEART	Impulse Dynamics N.V.	United States of America	09/841,991	6,424,866	2001-04-25	2002-07-23	2018-11-19
01 US CON 2	ELECTRICAL MUSCLE CONTROLLER USING A NON-EXCITATORY ELECTRIC FIELD	Impulse Dynamics N.V.	United States of America	09/723,899	6,330,476	2000-11-28	2001-12-11	2016-02-01
26A US	APPARATUS AND METHOD FOR CONTROLLING THE DELIVERY OF NON-EXCITATORY CARDIAC CONTRACTILITY MODULATING SIGNALS TO A HEART	Impulse Dynamics N.V.	United States of America	09/572,482	6,370,430	2000-05-16	2002-04-09	2019-03-25
01 US CON	Heart activity control apparatus using synchronized non-excitatory pre-stimulation	Impulse Dynamics N.V.	United States of America	09/563,544	6,363,279	2000-05-01	2002-03-26	2016-02-01
19 US 1	Bipolar Sensor for Muscle Tissue Action Potential Duration Estimation	Impulse Dynamics N.V.	United States of America	09/280,486	6,523,904	1999-03-30	2003-02-18	2019-03-30
26 US	APPARATUS AND METHOD FOR TIMING THE DELIVERY OF NON-EXCITATORY ETC SIGNALS TO A HEART	Impulse Dynamics N.V.	United States of America	09/276,460	6,263,242	1999-03-25	2001-07-17	2019-03-25
11 US	CONTRACTILITY ENHANCEMENT USING EXCITABLE TISSUE CONTROL AND MULTI-SITE PACING	Impulse Dynamics N.V.	United States of America	09/260,769	6,292,693	1999-03-02	2001-09-18	2019-03-02
22 US 1	APPARATUS AND METHOD FOR CHRONIC MEASUREMENT OF MONOPHASIC ACTION POTENTIALS	Impulse Dynamics N.V.	United States of America	09/237,568	6,152,882	1999-01-26	2000-11-28	2019-01-26
03 US	DRUG-DEVICE COMBINATION FOR CONTROLLING THE CONTRACTILITY OF MUSCLES	Impulse Dynamics N.V.	United States of America	09/254,993	6,236,887	1997-07-09	2001-05-22	2017-07-09
06 US	CARDIAC OUTPUT CONTROLLER	Impulse Dynamics N.V.	United States of America	09/254,902	6,298,268	1997-07-09	2001-10-02	2017-07-09
07 US	CARDIAC OUTPUT ENHANCED PACEMAKER	Impulse Dynamics N.V.	United States of America	09/254,900	6,463,324	1997-07-09	2002-10-08	2017-07-09
04 US	FENCING OF CARDIAC MUSCLES	Impulse Dynamics N.V.	United States of America	09/254,903	6,415,178	1997-07-09	2002-07-02	2017-07-09
02 US	APPARATUS AND METHOD FOR CONTROLLING THE CONTRACTILITY OF MUSCLES	Impulse Dynamics N.V.	United States of America	09/254,994	6,233,484	1997-07-09	2001-05-15	2017-07-09
01 US	CONTROLLING HEART PERFORMANCE USING A NON-EXCITATORY ELECTRIC FIELD	Impulse Dynamics N.V.	United States of America	09/101,723	6,317,631	1997-01-08	2001-11-13	2016-02-01
***40A US CON (I-D)	SIGNAL DELIVERY THROUGH THE RIGHT VENTRICULAR SEPTUM	Impulse Dynamics N.V.	United States of America	11/673,812	9,713,723	2007-02-12	2017-07-25	2020-05-15
01 US CON 10	ELECTRICAL MUSCLE CONTROLLER	Impulse Dynamics N.V.	United States of America	11/932,149	8,260,416	2007-10-31	2012-09-04	2019-11-19
01 US CON 3	Heart activity control apparatus using synchronized non-excitatory pre-stimulation	Impulse Dynamics N.V.	United States of America	10/039,845	9,289,618	2001-10-23	2016-03-22	2021-02-16
01 US CON 6	ELECTRICAL MUSCLE CONTROLLER	Impulse Dynamics N.V.	United States of America	11/550,560	8,311,629	2006-10-18	2012-11-13	2019-11-16

01 US CON2-Reexam	Re-Examination Of US Patent No. 6,330,476 ELECTRICAL MUSCLE CONTROLLER USING A NON-EXCITATORY ELECTRIC FIELD	Impulse Dynamics N.V.	United States of America	95/000,032	6,330,476 C1	2003-12-31	2009-09-08	
09 US	MULTI-ELECTRODE LEAD	Impulse Dynamics N.V.	United States of America	09/849,637	7,412,289	2001-05-04	2008-08-12	2019-11-04
10 US	Pacing with hemodynamic enhancement	Impulse Dynamics N.V.	United States of America	09/720,639	7460907	1999-07-18	2008-12-02	2019-07-18
108 US CON	IMPLANTABLE LEAD CONNECTOR	Impulse Dynamics N.V.	United States of America	14/254,945	9320886	2014-04-17	2016-04-26	2030-04-23
108 US CON 2	IMPLANTABLE LEAD CONNECTOR	Impulse Dynamics N.V.	United States of America	15136933	9,956,390	2016-04-24	2018-05-01	2030-04-23
108 US NP	IMPLANTABLE LEAD CONNECTOR	Impulse Dynamics N.V.	United States of America	13/265,874	8,705,230	2010-04-23	2014-04-22	2031-04-06
11 US	CONTRACTILITY ENHANCEMENT USING EXCITABLE TISSUE CONTROL AND MULTI-SITE PACING	Impulse Dynamics N.V.	United States of America	09/260,769	6,292,693	1999-03-02	2001-09-18	2019-03-02
12 US	Sensor-based regulation of excitable tissue control of the heart	Impulse Dynamics N.V.	United States of America	09/831,283	6,675,043	1999-11-04	2004-01-06	2019-11-04
13 US	Regulation of excitable tissue control of the heart based on physiological input	Impulse Dynamics N.V.	United States of America	09/831,100	6725093	2001-09-10	2004-04-20	2019-11-04
13 US CON	Regulation of excitable tissue control of the heart based on physiological input	Impulse Dynamics N.V.	United States of America	10/800,169	7310555	2004-03-10	2007-12-18	2019-11-04
14 US	TRIGGER-BASED REGULATION OF EXCITABLE TISSUE CONTROL OF THE HEART	Impulse Dynamics N.V.	United States of America	09/831,282	6587721	1999-11-04	2003-07-01	2019-11-04
15 US 1	Local cardiac motion control using applied electrical signals	Impulse Dynamics N.V.	United States of America	09/320,090	6442424	1999-05-26	2002-08-27	2019-05-26
16 US 1	Induction of Cardioplegia using Applied Electrical Signals	Impulse Dynamics N.V.	United States of America	09/320,091	6304777	1999-05-26	2001-10-16	2019-05-26
17 US 1	Muscle contraction assist device	Impulse Dynamics N.V.	United States of America	09/320,089	6,285,906	1999-05-26	2001-09-04	2019-05-26
18 US	Multi-electrode intravascular lead	Impulse Dynamics N.V.	United States of America	09/459,289	6662055	1999-12-17	2003-12-09	2019-12-17
19 US 1	Bipolar Sensor for Muscle Tissue Action Potential Duration Estimation	Impulse Dynamics N.V.	United States of America	09/280,486	6522904	1999-03-30	2003-02-18	2019-03-30
21 US 1	Method and Device for Dragging and Positioning a member within a duct in a body	Impulse Dynamics N.V.	United States of America	09/317,589	6,254,610	1999-05-24	2001-07-03	2019-05-24
23 US 1	APPARATUS AND METHOD FOR CONTROLLING THE DELIVERY OF CONTRACTILITY MODULATING NON-EXCITATORY SIGNALS TO THE HEART	Impulse Dynamics N.V.	United States of America	09/378,776	6,360,126	1999-08-20	2002-03-19	2019-08-20
24 US 1	APPARATUS AND METHOD FOR COLLECTING DATA USEFUL FOR DETERMINING THE PARAMETERS OF AN ALERT WINDOW FOR TIMING DELIVERY OF ETC. SIGNALS TO A HEART UNDER VARYING CARDIAC CONDITIONS	Impulse Dynamics N.V.	United States of America	09/328,068	6,223,072	1999-06-08	2001-04-24	2019-06-08
24 US CON	APPARATUS AND METHOD FOR COLLECTING DATA USEFUL FOR DETERMINING THE PARAMETERS OF AN ALERT WINDOW FOR TIMING DELIVERY OF ETC. SIGNALS TO A HEART UNDER VARYING CARDIAC CONDITIONS	Impulse Dynamics N.V.	United States of America	09/768,968	6,459,928	2001-01-24	2002-10-01	2019-06-08
24A US	APPARATUS AND METHOD FOR SETTING THE PARAMETERS OF AN ALERT WINDOW USED FOR TIMING THE DELIVERY OF ETC SIGNALS TO A HEART UNDER VARYING CARDIAC CONDITIONS	Impulse Dynamics N.V.	United States of America	09/338,649	6,233,487	1999-06-23	2001-05-15	2019-06-08
24A US CON	APPARATUS AND METHOD FOR SETTING THE PARAMETERS OF AN ALERT WINDOW USED FOR TIMING THE DELIVERY OF ETC SIGNALS TO A HEART UNDER VARYING CARDIAC CONDITIONS	Impulse Dynamics N.V.	United States of America	09/782,347	6,597,952	2001-02-12	2003-07-22	2019-07-17
25 US	APPARATUS AND METHOD FOR DETERMINING A MECHANICAL PROPERTY OF AN ORGAN OR BODY CAVITY BY IMPEDANCE DETERMINATION	Impulse Dynamics N.V.	United States of America	09/382,269	6,360,123	1999-08-24	2002-03-19	2019-08-24
26 US	APPARATUS AND METHOD FOR TIMING THE DELIVERY OF NON-EXCITATORY ETC SIGNALS TO A HEART	Impulse Dynamics N.V.	United States of America	09/276,460	6,263,242	1999-03-25	2001-07-17	2019-03-25
26A US	APPARATUS AND METHOD FOR CONTROLLING THE DELIVERY OF NON-EXCITATORY CARDIAC CONTRACTILITY MODULATING SIGNALS TO A HEART	Impulse Dynamics N.V.	United States of America	09/572,482	6,370,430	2000-05-16	2002-04-09	2019-03-25
28 US	Shockless defibrillation	Impulse Dynamics N.V.	United States of America	09/980,748	8014858	2000-05-25	2011-09-06	2020-05-25
29 US	High Capacitance Myocardial Electrodes	Impulse Dynamics N.V.	United States of America	09/384,834	6,292,704	1999-08-27	2001-09-18	2019-08-27
30 US	DRUG DELIVERY DEVICE	Impulse Dynamics N.V.	United States of America	09/980,908	7,190,997	2000-06-04	2007-03-13	2021-04-14
30A US	DRUG DELIVERY DEVICES	Impulse Dynamics N.V.	United States of America	10/048,803	7,171,263	2000-12-13	2007-01-30	2021-04-14
30B US	DRUG DELIVERY DEVICE	Impulse Dynamics N.V.	United States of America	10/048,802	7,092,753	2000-12-14	2006-08-15	2022-05-27
33 US	Catheter with Distal End Engaging Means	Impulse Dynamics N.V.	United States of America	09/351,726	6348045	1999-07-12	2002-02-19	2019-07-12
34 US	Electro Optically Driven Solid State Relay System	Impulse Dynamics N.V.	United States of America	09/359,684	6335538	1999-07-23	2002-01-01	2019-07-23
37 US	Fluid Phase Electrode Lead	Impulse Dynamics N.V.	United States of America	09/736974	6529778	2000-12-14	2003-03-04	2020-12-04
41 US	CARDIAC CONTRACTILITY MODULATION DEVICE HAVING ANTI-ARRHYTHMIC CAPABILITIES AND A METHOD OF OPERATING THEREOF	Impulse Dynamics N.V.	United States of America	10/111,515	6,993,385	2000-10-24	2006-01-31	2022-03-04
41 US CON	CARDIAC CONTRACTILITY MODULATION DEVICE HAVING ANTI-ARRHYTHMIC CAPABILITIES AND METHOD OF OPERATING THEREOF	Impulse Dynamics N.V.	United States of America	11/283,401	7,647,102	2005-11-18	2010-01-12	2021-06-07
43 US	ANTI-ARRHYTHMIC DEVICE AND A METHOD OF DELIVERING ANTI-ARRHYTHMIC CARDIAC THERAPY	Impulse Dynamics N.V.	United States of America	10/111,512	7,953,481	2000-10-25	2011-05-31	2022-07-05
44 US	DEVICE FOR CARDIAC THERAPY	Impulse Dynamics N.V.	United States of America	10/111,516	7,027,863	2001-05-10	2006-04-11	2021-07-18
49 US	FIELD DELIVERY SAFETY SYSTEM USING DETECTION OF ATYPICAL ECG	Impulse Dynamics N.V.	United States of America	09/914,547	6,480,737	2000-12-28	2002-11-12	2020-12-28
51 US	Enhanced Suction-Based Cardiac Mechanical Stabilizer	Impulse Dynamics N.V.	United States of America	09/624,089	6602183	2000-07-24	2003-08-05	2020-07-24

52 US	Local cardiac motion control using applied electrical signals and mechanical force	Impulse Dynamics N.V.	United States of America	09/979,937	6973347	2000-05-25	2005-12-06	2019-05-26
54 US 1	Braided Splittable Catheter Sheath	Impulse Dynamics N.V.	United States of America	09/713,538	6,749,600	2000-11-15	2004-06-15	2020-04-15
55 US	Method and Device for Inserting Leads into Coronary veins	Impulse Dynamics N.V.	United States of America	10/257,722	7195637	2001-04-17	2007-03-27	2022-11-20
74 US	APPARATUS AND METHOD FOR DELIVERING ELECTRICAL SIGNALS TO MODIFY GENE EXPRESSION IN CARDIAC TISSUE	Impulse Dynamics N.V.	United States of America	10/549,216	7,940,262	2004-03-10	2010-11-23	2025-05-15
74A US DIV	Apparatus & Method for Delivering Electrical Signals to Modify Gene Expression in Cardiac Tissue	Impulse Dynamics N.V.	United States of America	12/910,943	8,326,416	2010-10-25	2012-12-04	2024-03-10
91 US	TRANSCUTANEOUS CHARGING DEVICE	Impulse Dynamics N.V.	United States of America	12/155,448	8,901,878	2008-06-04	2014-12-02	2032-02-28
90A US	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	11/792,811	9,931,503	2005-12-09	2018-04-03	2033-03-26
90B US	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	11/919,491	8,548,583	2006-05-04	2013-10-01	2026-10-10
90B US CON	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	13/970,647	8,977,353	2013-08-20	2015-03-10	2026-05-04
90B US CON2	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	14/641,480	9,440,080	2015-03-09	2016-09-13	2024-03-10
90C US	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	11/802,685	8,352,031	2007-05-24	2013-01-08	2025-12-15
98 US	APPARATUS AND METHOD FOR DELIVERING ELECTRICAL SIGNALS TO A HEART	Impulse Dynamics N.V.	United States of America	11/991,481	7,966,067	2006-09-06	2011-06-21	2028-02-29
99 US	ASSESSING CARDIAC ACTIVITY	Impulse Dynamics N.V.	United States of America	12/223,651	8,406,864	2007-02-04	2013-03-26	2030-03-30
M-STK/US	Simple Control of Complex Bio-Implants	Impulse Dynamics N.V.	United States of America	15/190,451	10,189,866	2016-06-23	2019-01-29	2036-06-28

Reference	Official Title	Company	Country Name	Case Type	Case Status	Application No	Filing Date
115 US/PROV	Secure Communication Based on a Short Range Link	Impulse Dynamics N.V.	United States of America	Provisional	Pending	62/683,677	2018-06-12
117 US PROV	DISCRIMINATION OF SUPRAVENTRICULAR TACHYCARDIAS IN COMBINED CCM-ICD DEVICE	Impulse Dynamics N.V.	United States of America	Provisional	Pending	62/795,612	2019-01-23
90A US CON	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	Continuation	Pending	15/942,637	2018-04-02
90B US CON3	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	Continuation	Pending	15/249,506	2016-08-29
90B US CON4	PROTEIN ACTIVITY MODIFICATION	Impulse Dynamics N.V.	United States of America	Continuation	Pending	16/232,088	2018-12-26
98 EP	APPARATUS AND METHOD FOR DELIVERING ELECTRICAL SIGNALS TO A HEART	Impulse Dynamics N.V.	European Patent	PCT National Entry	Pending	06780471.6	2006-09-06
M-STK/US CON	Simple Control of Complex Bio-Implants	Impulse Dynamics N.V.	United States of America	Continuation	Pending	16/257,125	2019-01-25
114 US PROV	SECURE SHORT-RANGE COMMUNICATIONS LINK	Impulse Dynamics N.V.	United States of America	Provisional	Pending	62/816,982	2019-03-12
01 US CON 14	Heart activity control apparatus using synchronized non-excitatory pre-stimulation	Impulse Dynamics N.V.	United States of America	Continuation	Pending	14/941,791	2015-11-16
10 US CON	Pacing with hemodynamic enhancement	Impulse Dynamics N.V.	United States of America		Unfiled		
116 US PROV	CCM-D DEVICE WITH HIGH LONGEVITY	Impulse Dynamics N.V.	United States of America		Unfiled		
118 US PROV	IMPLANTABLE CCM/ICD WITH PAINLESS HIGH VOLTAGE LEAD INTEGRITY TEST	Impulse Dynamics N.V.	United States of America		Unfiled		
M-STK/US Prov	Simple Control of Complex Bio-Implants	Impulse Dynamics N.V.	United States of America			62/183,848	2015-06-24

Reference	Official Title	License	Company	Country Name	Application No	Registration No	Filing Date	Registration Date	Expiration Date
*GDT 105 US	Cardiac rhythm management system for edema	Cardiac Pacemakers (Licensed Via Guidant Settlement)	Impulse Dynamics N.V.	United States of America	09/919,483	7,191,000	2001-07-31	2007-03-13	
*GDT 105 US CON	Cardiac rhythm management system for edema	Cardiac Pacemakers (Licensed Via Guidant Settlement)	Impulse Dynamics N.V.	United States of America	10/411,795	7,177,681	2003-04-11	2007-02-13	
*GDT 105 US CON3	CARDIAC RHYTHM MANAGEMENT SYSTEM FOR EDEMA	Cardiac Pacemakers (Licensed Via Guidant Settlement)	Impulse Dynamics N.V.	United States of America	12/152,099	9,265,950	2008-05-12	2016-02-23	2024-02-22
*GDT 106 US	APPARATUS FOR SPATIALLY AND TEMPORALLY DISTRIBUTING CARDIAC ELECTRICAL STIMULATION	Cardiac Pacemakers (Licensed Via Guidant Settlement)	Impulse Dynamics N.V.	United States of America	09/544,363	6,640,135	2000-04-06	2003-10-28	
*GDT 106 US CON1	APPARATUS FOR SPATIALLY AND TEMPORALLY DISTRIBUTING CARDIAC ELECTRICAL STIMULATION	Cardiac Pacemakers (Licensed Via Guidant Settlement)	Impulse Dynamics N.V.	United States of America	10/634,232	7,292,887	2003-08-05	2007-11-06	
*GDT 106 US CON2	APPARATUS FOR SPATIALLY AND TEMPORALLY DISTRIBUTING CARDIAC ELECTRICAL STIMULATION	Cardiac Pacemakers (Licensed Via Guidant Settlement)	Impulse Dynamics N.V.	United States of America	11/931,718	8,090,442	2007-10-31	2012-01-03	
*GDT 106 US CON3	APPARATUS FOR SPATIALLY AND TEMPORALLY DISTRIBUTING CARDIAC ELECTRICAL STIMULATION	Cardiac Pacemakers (Licensed Via Guidant Settlement)	Impulse Dynamics N.V.	United States of America	11/931,779	8,560,067	2007-10-31	2013-10-15	2027-05-05
*GDT 107 US	METHOD AND SYSTEM FOR TREATMENT OF NEUROCARDIOGENIC SYNCOPE	Cardiac Pacemakers (Licensed Via Guidant Settlement)	Impulse Dynamics N.V.	United States of America	09/917,259	6,748,271	2001-07-27	2004-06-08	
*GDT 107 US CON 2	METHOD AND SYSTEM FOR TREATMENT OF NEUROCARDIOGENIC SYNCOPE	Cardiac Pacemakers (Licensed Via Guidant Settlement)	Impulse Dynamics N.V.	United States of America	13/235,599	8,498,703	2011-09-19	2013-07-30	2021-07-27
*GDT 107 US CON1	METHOD AND SYSTEM FOR TREATMENT OF NEUROCARDIOGENIC SYNCOPE	Cardiac Pacemakers (Licensed Via Guidant Settlement)	Impulse Dynamics N.V.	United States of America	10/862,831	8,024,040	2004-06-07	2011-09-20	
*GDT 105 US CON2	Cardiac rhythm management system for edema	Cardiac Pacemakers (Licensed Via Guidant Settlement)	Impulse Dynamics N.V.	United States of America	11/673,699		2007-02-12		