

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT7702713

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
	Name	Execution Date
	BIOGEN MA INC.	01/31/2017
RECEIVING PARTY DATA		
Name:	BIOVERATIV THERAPEUTICS INC.	
Street Address:	225 SECOND AVENUE	
City:	WALTHAM	
State/Country:	MASSACHUSETTS	
Postal Code:	02451	
PROPERTY NUMBERS Total: 2		
Property Type	Number	
Application Number:	16516816	
Application Number:	18068288	
CORRESPONDENCE DATA		
Fax Number:	(857)300-4001	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>		
Phone:	(857) 300-4000	
Email:	leslie.roberts@lathropgpm.com, internalip@lathropgpm.com	
Correspondent Name:	LATHROP GPM LLP	
Address Line 1:	28 STATE STREET	
Address Line 2:	7TH FLOOR	
Address Line 4:	BOSTON, MASSACHUSETTS 02109	
ATTORNEY DOCKET NUMBER:	614262 AND 737915 -3OF3	
NAME OF SUBMITTER:	JAMES H. VELEMA, ESQ.	
SIGNATURE:	/James H. Velema/	
DATE SIGNED:	12/19/2022	
Total Attachments: 46		
source=614262- SA9-420USDIV - Executed Assignment - Biogen MA to Bioverativ#page1.tif		
source=614262- SA9-420USDIV - Executed Assignment - Biogen MA to Bioverativ#page2.tif		
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PATENT ASSIGNMENT

For valuable consideration, Biogen MA Inc., a corporation of Massachusetts having a place of business at 250 Binney Street, Cambridge, Massachusetts 02142, hereby assign to Bioverativ Therapeutics Inc., a corporation of Delaware having a place of business at:

225 Second Avenue
Waltham, MA 02451,

and its successors and assigns (collectively hereinafter called “the Assignee”), our entire right, title and interest throughout the world in the inventions and improvements which are subject of those patents and patent applications set forth on Schedule A of this assignment, this assignment including said patents and patent applications, any and all United States and foreign utility patents and patent applications, including continuation, continuation-in-part, divisional, reissue, and reexamination applications, utility models, and design registrations granted for any of said inventions or improvements, and the right to claim priority based on the filing date of said application under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, the European Patent Convention, and all other treaties of like purposes; and we authorize the Assignee to apply in all countries in our name or in its own name for patents, utility models, design registrations and like rights of exclusion and for inventors’ certificates for said inventions and improvements; and we agree for ourselves and our respective heirs, legal representatives and assigns, without further compensation to perform such lawful acts and to sign such further applications, assignments, Preliminary Statements and other lawful documents as the Assignee may reasonably request to effectuate fully this assignment.

DATE: January 31, 2017 at
3:00 p.m. Eastern Time

SIGNED, on behalf of the said Assignor,

BIOGEN MA INC.

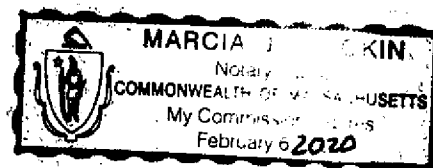
By: Rynne Sullivan
Name: Rynne Sullivan
Title: SVP Finance
Dated: January 31, 2017 3:00 PM Eastern Time

Before me this 27th day of January 2017, personally appeared Rynne Sullivan,
representative of Assignor, known to me to be the person whose name is subscribed to the
foregoing Assignment, and acknowledged that he executed the same as his free and act and deed
for the purposes therein contained.

Marcia J. Kin

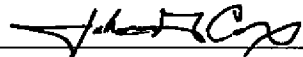
Notary Public

My commission expires:



SIGNED, on behalf of the said Assignee,

BIOVERATIV THERAPEUTICS INC.

By: 

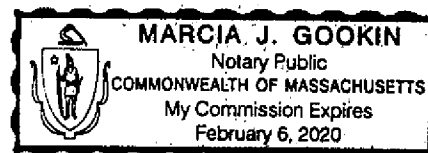
Name: John G. Cox

Title: CEO Bioverativ

Dated: January 31, 2017 3:00 PM Eastern Time

Before me this 27th day of January 2017, personally appeared John G. Cox, representative of Assignee, known to me to be the person whose name is subscribed to the foregoing Assignment, and acknowledged that he executed the same as his free and act and deed for the purposes therein contained.


Notary Public



Schedule A

Patents and Patent Applications

Schedule A

Patents and Patent Applications

PATENT FAMILIES OWNED BY BIOGEN MA INC.

RECOMBINANT FC RN AND VARIANTS THEREOF FOR PURIFICATION OF FC-CONTAINING FUSION PROTEINS						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0794 US 001	61/107,625	10/22/2008		McDonnell	Recombinant FcRn And Variants Thereof For Purification Of Fc-Containing Fusion Proteins	Inactive
P0794 US 002	13/125,795	10/21/2009	US 2012-0021484 A1	McDonnell	Recombinant FcRn And Variants Thereof For Purification Of Fc-Containing Fusion Proteins	Abandoned
P0794 EP 001	9744844.3	10/21/2009	EP2365979	McDonnell	Recombinant FcRn And Variants Thereof For Purification Of Fc-Containing Fusion Proteins	Abandoned
P0794 HK 001	12102214.2	03/05/2012		McDonnell	Recombinant FcRn And Variants Thereof For Purification Of Fc-Containing Fusion Proteins	Abandoned
P0794 WO 001	PCT/US/2009/061517	10/21/2009	WO 2010/048313	McDonnell	Recombinant FcRn And Variants Thereof For Purification Of Fc-Containing Fusion Proteins	Inactive

PRO-COAGULANT COMPOUNDS AND METHODS OF USE THEREOF						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0918 US 001	61/495,818	6/10/2011		Thorn; Toby; Mezo	Pro-coagulant Compounds and Methods of Use Thereof	Expired

P0918 US 002	61/600,237	2/17/2012		Thorn; Toby; Mezo	Pro-coagulant Compounds and Methods of Use Thereof	Expired
P0918 US 003	61/605,540	3/1/2012		Thorn; Toby; Mezo	Pro-coagulant Compounds and Methods of Use Thereof	Expired
P0918US004	14/125,040	6/9/2012	US 9,486,507 B2	Thorn; Toby; Mezo	Pro-coagulant Compounds and Methods of Use Thereof	Granted
P0918 AU 001	2012267484	6/9/2012		Thorn; Toby; Mezo	Pro-coagulant Compounds and Methods of Use Thereof	Pending
P0918 CA 001	2,838,833	6/9/2012		Thorn; Toby; Mezo	Pro-coagulant Compounds and Methods of Use Thereof	Pending
P0918 EP 001	12797036.6	6/9/2012	EP2717898 A2	Thorn; Toby; Mezo	Pro-coagulant Compounds and Methods of Use Thereof	Pending
P0918 NZ 001	619079	6/9/2012		Thorn; Toby; Mezo	Pro-coagulant Compounds and Methods of Use Thereof	Allowed
P0918 PC 001	PCT/US2012/041777	6/9/2012	WO 2012/170969	Thorn; Toby; Mezo	Pro-coagulant Compounds and Methods of Use Thereof	Expired

VON WILLEBRAND FACTOR FRAGMENTS, VWF COMPLEX WITH FACTOR VIII, AND USES THEREOF						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0950 US 001	61/586,099	1/12/2012		Chhabra; Liu; Peters; Jiang	Von Willebrand Factor Fragments, VWF Complex with Factor VIII, and Uses Thereof	Expired
P0950 US 002	61/586,654	1/13/2012		Chhabra; Liu; Peters; Jiang	Von Willebrand Factor Fragments, VWF Complex with Factor VIII, and Uses Thereof	Expired
P0950 US 003	61/667,901	7/3/2012		Chhabra; Liu; Peters; Jiang	Von Willebrand Factor Fragments, VWF Complex with Factor VIII, and Uses Thereof	Expired

VON WILLEBRAND FACTOR FRAGMENTS, VWF COMPLEX WITH FACTOR VIII, AND USES THEREOF						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0950 US 004	61/734,954	12/7/2012		Chhabra; Liu; Peters; Jiang	Von Willebrand Factor Fragments, VWF Complex with Factor VIII, and Uses Thereof	Expired
P0950 US 005	14/371,948	1/12/2013	US 2015-0023959 A1	Chhabra; Liu; Peters; Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 AU 001	2013205647	1/12/2013	AU 2013205647	Chhabra; Liu; Peters; Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Granted
P0950 AU 002	2016202875	1/12/2013		Liu; Peters; Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 BR 001	BR112014017 165.3	1/12/2013		Chhabra; Liu; Peters Jiang	Von Willebrand Factor Fragments, VWF Complex with Factor VIII, and Uses Thereof	Pending
P0950 CA 001	2,863,328	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 CL 001	1825-2014	1/12/2013		Chhabra; Liu; Peters Jiang	Von Willebrand Factor Fragments, VWF Complex with Factor VIII, and Uses Thereof	Pending
P0950 CN 001	20138001345 2.7	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending

VON WILLEBRAND FACTOR FRAGMENTS, VWF COMPLEX WITH FACTOR VIII, AND USES THEREOF						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0950 CO 001	14-152.717	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Allowed
P0950 EA 001	201491186	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 EP 001	13735649.9	1/12/2013	EP2804623 (A1)	Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 HK 001	15103334.2	4/1/2015		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 ID 001	P-00201404752	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 IL 001	233463	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 IN 001	5655/DELNP/2014	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 JP 001	2014-552353	1/12/2013		Chhabra; Liu; Peters Jiang	Von Willebrand Factor Fragments, VWF Complex with Factor VIII, and Uses Thereof	Pending

VON WILLEBRAND FACTOR FRAGMENTS, VWF COMPLEX WITH FACTOR VIII, AND USES THEREOF						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0950 KR 001	2014-7022369	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 MX 001	MX/A/2014/008512	1/12/2013		Chhabra; Liu; Peters Jiang	Von Willebrand Factor Fragments, VWF Complex with Factor VIII, and Uses Thereof	Pending
P0950 MY 001	PI 2014002043	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 NZ 001	626945	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Allowed
P0950 NZ 002	723512	9/20/2016		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 WO 001	PCT/US2013/021330	1/12/2013	WO/2013/106787	Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Expired
P0950 PH 001	1-2014-501602	1/12/2013		Chhabra; Liu; Peters Jiang	Von Willebrand Factor Fragments, VWF Complex with Factor VIII, and Uses Thereof	Pending
P0950 SG 001	11201403764 X	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Granted

VON WILLEBRAND FACTOR FRAGMENTS, VWF COMPLEX WITH FACTOR VIII, AND USES THEREOF						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0950 SG 002	10201610193 R	12/5/2016		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Filed
P0950 TH 001	1401003998	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending
P0950 TW 001	102101337	1/14/2013		Chhabra; Liu; Peters Jiang	Von Willebrand Factor Fragments, VWF Complex with Factor VIII, and Uses Thereof	Pending
P0950 ZA 001	2014/05094	1/12/2013		Chhabra; Liu; Peters Jiang	Chimeric Factor VIII Polypeptides And Uses Thereof	Pending

DELIVERY DEVICE AND COMPONENTS THEREOF						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0954 US 001	61/617,340	03/29/2012		Bhatt; Chen; Fetzner; Hitscherich Jr..	Delivery Device And Components Thereof	Inactive
P0954 US 002	14/387,939	03/28/2013	2015-0057608	Bhatt; Chen; Fetzner; Hitscherich Jr..	Delivery Device And Components Thereof	Pending
P0954 EP 001	13768062.5	03/28/2013	2830678	Bhatt; Chen; Fetzner; Hitscherich Jr..	Delivery Device And Components Thereof	Pending

DELIVERY DEVICE AND COMPONENTS THEREOF						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0954 WO 001	PCT/US201 3/034396	03/28/2013	WO 2013/149032	Bhatt; Chen; Fetzer; Hitscherich Jr..	Delivery Device And Components Thereof	Inactive

OPTIMIZED FACTOR VIII GENE						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTOR S	TITLE	STATUS
P0959 US 001	61/765,626	2/15/2013		Tan; Peters	Optimized Factor VIII Gene	Expired
P0959US002	14/767,425	2/14/2014	US 2015-0361158 A1	Tan; Peters	Optimized Factor VIII Gene	Pending
P0959 EP 001	14751254.5	2/14/2014	EP2956477 A1	Tan; Peters	Optimized Factor VIII Gene	Pending
P0959 WO 001	PCT/US2014/016 441	2/14/2014	WO 2014/127215	Tan; Peters	Optimized Factor VIII Gene	Expired

SYRINGE						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0960 US 001	29/468,730	10/02/2013	D751,705	Bhatt; Chen; Fetzner; Hischerich.	Syringe	Granted
P0960 AU 001	116222014	04/02/2014	355049	Bhatt; Chen; Fetzner; Hischerich.	Flange For A Syringe	Granted
P0960 CA 001	155903	04/02/2014	155903	Bhatt; Chen; Fetzner;	Flange For A Syringe	Granted

SYRINGE						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
				Hitscherich.		
P0960 EP 003	002438226-0003	04/02/2014	002438226-0003	Bhatt; Chen; Fetzter; Hitscherich.	Syringes (Part Of-)	Granted
P0960 EP 002	002438226-0002	04/02/2014	002438226-0002	Bhatt; Chen; Fetzter; Hitscherich.	Syringes (Part Of-)	Granted
P0960 EP 001	002438226-0001	04/02/2014	002438226-0001	Bhatt; Chen; Fetzter; Hitscherich.	Syringes (Part Of-)	Granted
P0960 JP 001	2014-007284	04/02/2014	1548953	Bhatt; Chen; Fetzter; Hitscherich.	Syringe	Granted

RECOMBINANT FACTOR VIII PROTEINS						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0963 US 001	61/599,305	2/15/2012		Kulman	Recombinant Factor VIII Proteins	Expired
P0963 US 002	61/670,553	7/11/2012		Kulman	Recombinant Factor VIII Proteins	Expired
P0963 US 003	61/759,785	2/1/2013		Kulman	Recombinant Factor VIII Proteins	Expired
P0963 US 004	14/379,196	2/15/2013	US 2016-0355568 A1	Kulman	Recombinant Factor VIII Proteins	Pending
P0963 AU 001	2013204636	2/15/2013	2013204636	Kulman	Recombinant Factor VIII Proteins	Granted
P0963 BR 001	BR1120140199019	2/15/2013		Kulman	Recombinant Factor VIII Proteins	Pending
P0963 CA 001	2,864,126	2/15/2013		Kulman	Recombinant Factor VIII Proteins	Pending

P0963 EA 001	201491388	2/15/2013		Kulman	Recombinant Factor VIII Proteins	Pending
P0963 EP 001	13749382.1	2/15/2013	EP2822577 A1	Kulman	Recombinant Factor VIII Proteins	Pending
P0963 HK 001	15105966.2	6/23/2015		Kulman	Recombinant Factor VIII Proteins	Pending
P0963 JP 001	2014-557854	2/15/2013		Kulman	Recombinant Factor VIII Proteins	Pending
P0963 KR 001	2014-7025369	2/15/2013		Kulman	Recombinant Factor VIII Proteins	Pending
P0963 NZ 001	628014	2/15/2013		Kulman	Recombinant Factor VIII Proteins	Allowed
P0963 CA 001	PCT/US2013/026521	2/15/2013	WO 2013/12345 7	Kulman	Recombinant Factor VIII Proteins	Expired
P0963 TW 001	102105586	2/18/2013		Kulman	Recombinant Factor VIII Proteins	Pending

DEVICE CONTAINER						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0972 US 001	61/667,550	07/03/2012		Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container	Inactive
P0972 US 002	14/411,739	07/03/2013	2015-0164743	Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container	Pending
P0972 AR 001	P130102378	07/03/2013	091670	Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container	Pending
P0972 AU 001	2013286673	07/03/2013		Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container	Pending
P0972 BR 001	BR112015000025-8	07/03/2013		Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container	Pending
P0972 CA 001	2,877,972	07/03/2013		Gandhi; Jacoby; Janson; Presher;	Device Container	Pending

DEVICE CONTAINER					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
				Steinmann	
P0972 CO 001	15-018.242	07/03/2013		Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container
P0972 EP 001	13812479.7	07/03/2013	2872418	Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container
P0972 IL 001	236410	07/03/2013		Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container
P0972 JP 001	2015-520683	07/03/2013	2015-527951	Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container
P0972 KR 001	2015-7002365	07/03/2013		Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container
P0972 MX 001	MX/a/2015/000109	07/03/2013		Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container
P0972 NZ 001	703337	07/03/2013		Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container
P0972 WO 001	PCT/US2013/49322	07/03/2013		Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container
P0972 TW 001	102123831	07/03/2013		Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container
P0972 VE 001	2013-000834	07/03/2013		Gandhi; Jacoby; Janson; Presher; Steinmann	Device Container

SYRINGE AND VIAL KIT PACKAGING					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
P0973 US 001	29/478,806	01/08/2014	D741,703	Jacoby; Janson	Package
P0973 AU 001	132662014	07/04/2014	356820	Jacoby; Janson	Packaging

SYRINGE AND VIAL KIT PACKAGING						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0973 CA 001	157569	07/08/2014	157569	Jacoby; Janson	Packaging	Granted
P0973 EP 004	002497545-0004	07/07/2014	002497545-0004	Jacoby; Janson	Packaging	Granted
P0973 EP 003	002497545-0003	07/07/2014	002497545-0003	Jacoby; Janson	Packaging	Granted
P0973 EP 002	002497545-0002	07/07/2014	002497545-0002	Jacoby; Janson	Packaging	Granted
P0973 EP 001	002497545-0001	07/07/2014	002497545-0001	Jacoby; Janson	Packaging	Granted
P0973 JP 001	2014-014920	07/08/2014	1520308	Jacoby; Janson	Container for Packaging	Granted

METHODS OF DETECTING GLYCOSAMINOGLYCANS						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0979 US 001	61/622,720	04/11/2012		Sosic; Blum; Guan; Boumajny	Methods of Detecting Glycosaminoglycans	Inactive
P0979 US 002	14/391,775	10/10/2014	US2015075261	Sosic; Blum; Guan; Boumajny	Methods of Detecting Glycosaminoglycans	Pending
P0979 WO 001	PCT/US2013/036205	04/11/2013	WO2013/155324	Sosic; Blum; Guan; Boumajny	Methods of Detecting Glycosaminoglycans	Inactive
P0979 EP 001	13776381.9	04/11/2013	EP2836518	Sosic; Blum; Guan; Boumajny	Methods of Detecting Glycosaminoglycans	Pending
P0979 JP 001	2015505915	04/11/2013	JP2015518150	Sosic; Blum; Guan; Boumajny	Methods of Detecting Glycosaminoglycans	Pending

BLOOD FACTOR MONITORING ASSAY AND USES THEREOF
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ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0992 US 001	61/675,713	07/25/2012		Sommer	Blood Factor Monitoring Assay And Uses Thereof	Inactive
P0992 US 002	14/416,214	07/25/2013	2015-0185235	Sommer	Blood Factor Monitoring Assay And Uses Thereof	Pending
P0992 EP 001	13823087.5	07/25/2013	2877202	Sommer	Blood Factor Monitoring Assay And Uses Thereof	Pending
P0992 HK 001	15111993.7	12/03/2015		Sommer	Blood Factor Monitoring Assay And Uses Thereof	Pending
P0992WO001	PCT/US2013/052101	07/25/2013	WO 2014/018777 A2	Sommer	Blood Factor Monitoring Assay And Uses Thereof	Inactive

PROCOAGULANT COMPOUNDS						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1001 US 001	61/657,688	6/8/2012		Hong; Mezo; Salas; Peters	Thrombin-Activatable Procoagulant Compounds With Self-Immotive Spacers and Uses Thereof	Expired
P1001 US 002	61/800,626	3/15/2013		Hong; Mezo; Salas; Peters	Thrombin-Activatable Procoagulant Compounds With Self-Immotive Spacers and Uses Thereof	Expired
P1001US 003	14/406,163	6/7/2013	US 2015-0184142 A1	Hong; Mezo; Salas; Peters	Procoagulant Compounds	Pending
P1001 AU 001	2013270682	6/7/2013		Hong; Mezo; Salas; Peters	Procoagulant Compounds	Abandoned
P1001 CA 001	2,875,246	6/7/2013		Hong; Mezo; Salas; Peters	Procoagulant Compounds	Abandoned
P1001CN001	201380036823.3	6/7/2013		Hong; Mezo; Salas; Peters	Procoagulant Compounds	Abandoned
P1001EP001	13799785.4	6/7/2013	EP2858659 A1	Hong; Mezo;	Procoagulant Compounds	Pending

PROCOAGULANT COMPOUNDS					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
				Salas; Peters	
P1001HK001	15109401.7	6/7/2013		Hong; Mezo; Salas; Peters	Procoagulant Compounds
P1001 JP 001	2015-516264	6/7/2013		Hong; Mezo; Salas; Peters	Procoagulant Compounds
P1001 WO 001	PCT/US2013/44 841	6/7/2013	WO 2013/185113	Hong; Mezo; Salas; Peters	Procoagulant Compounds
					Expired

CHIMERIC CLOTTING FACTORS					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
P1007 US 001	61/657,685	6/8/2012		Salas; Kistanova	Chimeric Clotting Factors
P1007 US 002	61/759,817	2/1/2013		Salas; Kistanova	Chimeric Clotting Factors
P1007 US 003	61/801,603	3/15/2013		Salas; Kistanova	Chimeric Clotting Factors
P1007 US 004	61/829,775	5/31/2013		Salas; Kistanova	Chimeric Clotting Factors
P1007 US 005	14/406,160	6/7/2013	US 2015-0353911 A1	Salas; Kistanova	Chimeric Clotting Factors
P1007 AU 001	2013270683	6/7/2013		Salas; Kistanova	Chimeric Clotting Factors
P1007 CA 001	2,875,247	6/7/2013		Salas; Kistanova	Chimeric Clotting Factors
P1007 CN 001	201380036553.6	6/7/2013		Salas; Kistanova	Chimeric Clotting Factors
P1007 EP 001	13799824.1	6/7/2013	EP2863940 A2	Salas; Kistanova	Chimeric Clotting Factors
					Pending

CHIMERIC CLOTTING FACTORS						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1007 HK 001	15108385.9	8/28/2015		Salas; Kistanova	Chimeric Clotting Factors	Abandoned
P1007 JP 001	2015-516265	6/7/2013		Salas; Kistanova	Chimeric Clotting Factors	Abandoned
P1007 WO 001	PCT/US2013/44842	6/7/2013		Salas; Kistanova	Chimeric Clotting Factors	Expired

LYOPHILIZED FACTOR IX FORMULATIONS						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1008 US 001	61/969,801	03/24/2014		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Inactive
P1008 US 002	15/128,951	[TBD] 03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 AR 001	P150100880	03/25/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 AU 001	2015236340	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 BR 001	BR1120160 21777-2	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 CA 001	2,943,034	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 CL 001	2386-2016	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 CO 001	2016/00032 29	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 EA 001	201691807	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 EP 001	15769411.8	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX	Pending

LYOPHILIZED FACTOR IX FORMULATIONS						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1008 GC 001	2015/29111	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 IL 001	247869	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 JP 001	2016-558751	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 KR 001	10-2016-7028692	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 MX 001	MX/a/2016/012447	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 NZ 001	724351	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 PH 001	1-2016-501877	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 SG 001	11201607642R	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 TH 001	1601005518	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 TW 001	104109389	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 UA 001	a201609532	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 VE 001	2015-000266	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 ZA 001	2016/06551	03/24/2015		Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Pending
P1008 WO 001	PCT/US2015/022141	03/24/2014	WO 2015/148444	Thome; Leveille; Parkhurst-Lang	Lyophilized Factor IX Formulations	Inactive

CELL LINE EXPRESSING SINGLE CHAIN FACTOR VIII POLYPEPTIDES AND USES THEREOF						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1009 US 001	61/668,889	07/06/2012		Low; Dumont; Bitonti	Cell Line Expressing Single Chain Factor VIII Polypeptides, Single Chain Factor VIII Polypeptides, And Methods Of Use Thereof	Inactive
P1009 US 002	14/412,823	07/05/2013	2015-0191526	Low; Dumont; Bitonti	Cell Line Expressing Single Chain Factor VIII Polypeptides And Uses Thereof	Pending
P1009 EP 001	13813225.3	07/05/2013	2870250	Low; Dumont; Bitonti	Cell Line Expressing Single Chain Factor VIII Polypeptides And Uses Thereof	Pending
P1009 HK 001	15111207.9	11/13/2015		Low; Dumont; Bitonti	Cell Line Expressing Single Chain Factor VIII Polypeptides And Uses Thereof	Pending
P1009 WO 001	PCT/US2013/49460	07/05/2013	WO/2014/008480	Low; Dumont; Bitonti	Cell Line Expressing Single Chain Factor VIII Polypeptides And Uses Thereof	Inactive

METHODS OF USING A FIXED DOSE OF A CLOTTING FACTOR						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1030 US 001	61/715,746	10/18/2012		Cobb; Diaio; Jiang; Li	Methods Of Using A Fixed Dose Of A Clotting Factor	Inactive
P1030 US 002	61/759,856	02/01/2013		Cobb; Diaio; Jiang; Li	Methods Of Using A Fixed Dose Of A Clotting Factor	Inactive
P1030 US 003	61/760,000	02/01/2013		Cobb; Diaio; Jiang; Li	Methods Of Using A Fixed Dose Of A Clotting Factor	Inactive
P1030 US 004	14/436,667	10/18/2013	US 2016-0296607 A1	Cobb; Diaio; Jiang; Li	Methods Of Using A Fixed Dose Of A Clotting Factor	Pending
P1030 AU 001	2013331000	10/18/2013		Cobb; Diaio; Jiang; Li	Methods Of Using A Fixed Dose Of A Clotting Factor	Pending
P1030 CA 001	2,888,806	10/18/2013		Cobb; Diaio; Jiang; Li	Methods Of Using A Fixed Dose Of A Clotting Factor	Pending

METHODS OF USING A FIXED DOSE OF A CLOTTING FACTOR						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1030 EP 001	13847770.8	10/18/2013	2908847	Cobb; Diaio; Jiang; Li	Methods Of Using A Fixed Dose Of A Clotting Factor	Pending
P1030 HK 001	16101669.0	02/16/2016		Cobb; Diaio; Jiang; Li	Methods Of Using A Fixed Dose Of A Clotting Factor	Pending
P1030 NZ 001	707110	10/18/2013		Cobb; Diaio; Jiang; Li	Methods Of Using A Fixed Dose Of A Clotting Factor	Pending
P1030 ZA 001	2015/03287	10/18/2013		Cobb; Diaio; Jiang; Li	Methods Of Using A Fixed Dose Of A Clotting Factor	Pending
P1030 WO 001	PCT/US2013/065772	10/18/2013	WO/2014/063108	Cobb; Diaio; Jiang; Li	Methods Of Using A Fixed Dose Of A Clotting Factor	Inactive

METHOD OF USING FIX POLYPEPTIDE						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1031 US 001	61/705,607	09/25/2012		Jiang; Peters; Pierce; Truex	Methods Of Using A FIX Polypeptide	Inactive
P1031 US 002	61/759,796	02/01/2013		Jiang; Peters; Pierce; Truex	Method Of Using FIX Polypeptide	Inactive
P1031 US 003	61/800,163	03/15/2013		Jiang; Peters; Pierce; Truex; Brader	Method Of Using FIX Polypeptide	Inactive
P1031 US 004	61/811,412	04/12/2013		Jiang; Peters; Pierce; Truex; Brader	Method Of Using A FIX Polypeptide	Inactive
P1031 US 005	61/829,755	05/31/2013		Jiang; Peters; Pierce; Truex; Brader	Method Of Using A FIX Polypeptide	Inactive
P1031 US 006	61/839,439	06/26/2013		Jiang; Peters; Pierce; Truex; Brader	Method Of Using FIX Polypeptide	Inactive
P1031 US 007	61/863,859	08/08/2013		Jiang; Peters; Pierce; Truex; Brader	Method Of Using FIX Polypeptide	Inactive
P1031 US 008	14/430,848	09/25/2013	2015-0252345	Jiang; Peters; Pierce; Truex; Brader	Method Of Using FIX Polypeptide	Pending

METHOD OF USING FIX POLYPEPTIDE						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1031 EP 001	13842864.4	09/25/2013	2900328	Jiang; Peters; Pierce; Truex; Brader	Methods Of Using FIX Polypeptide	Pending
P1031 HK 001	16101264.9	02/03/2016		Jiang; Peters; Pierce; Truex; Brader	Methods Of Using FIX Polypeptide	Pending
P1031 WO 001	PCT/US201 3/061747	09/25/2013	WO/2014/05 2490	Jiang; Peters; Pierce; Truex; Brader	Methods Of Using FIX Polypeptides	Inactive
P1031 TW 001	102134557	09/25/2013		Jiang; Peters; Pierce; Truex; Brader	Method Of Using FIX Polypeptide	Pending

METHODS OF USING FVIII POLYPEPTIDE						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1035 US 001	61/720,356	10/30/2012		Jiang; Li; Neelakantan; Nestorov	Methods Of Using FVIII Polypeptide	Inactive
P1035 US 002	61/759,880	02/01/2013		Jiang; Li; Neelakantan; Nestorov	Methods Of Using FVIII Polypeptide	Inactive
P1035 US 003	61/800,293	03/15/2013		Jiang; Li; Neelakantan; Nestorov	Methods Of Using FVIII Polypeptide	Inactive
P1035 US 004	61/817,085	04/29/2013		Jiang; Li; Neelakantan; Nestorov	Methods Of Using FVIII Polypeptide	Inactive
P1035 US 005	61/829,884	05/31/2013		Jiang; Li; Neelakantan; Nestorov	Method Of Using FVIII Polypeptide	Inactive
P1035 US 006	61/839,477	06/26/2013		Jiang; Li; Neelakantan; Nestorov	Methods Of Using FVIII Polypeptide	Inactive
P1035 US 007	61/863,860	08/08/2013		Jiang; Li; Neelakantan; Nestorov	Method Of Using FVIII Polypeptide	Inactive
P1035 US 008	61/876,927	09/12/2013		Jiang; Li; Neelakantan; Nestorov	Methods Of Using FVIII Polypeptide	Inactive
P1035 US 009	61/879,955	09/19/2013		Jiang; Li; Neelakantan; Nestorov	Method Of Using FVIII Polypeptide	Inactive

METHODS OF USING FVIII POLYPEPTIDE						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1035 US 010	14/439,435	10/30/2013	2015-0266944	Jiang; Li; Neelakantan; Nestorov	Methods Of Using FVIII Polypeptide	Pending
P1035 EP 001	13852306.3	10/30/2013	2914293	Jiang; Li; Neelakantan; Nestorov	Methods Of Using FVIII Polypeptide	Pending
P1035 HK 001	16102668.9	03/08/2016		Jiang; Li; Neelakantan; Nestorov	Methods Of Using FVIII Polypeptide	Pending
P1035 WO 001	PCT/US2013/067613	10/30/2013	WO/2014/070953	Jiang; Li; Neelakantan; Nestorov	Methods Of Using FVIII Polypeptide	Inactive

ON-COLUMN VIRAL INACTIVATION METHODS						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1053 US 001	61/882,488	09/25/2013		Bolton; Selvitelli	On-Column Viral Inactivation Methods	Inactive
P1053 US 002	62/028,657	07/24/2014		Bolton; Selvitelli	On-Column Viral Inactivation Methods	Inactive
P1053 US 003	15/024,988	09/25/2014	US 2016-0347788 A1	Bolton; Selvitelli	On-Column Viral Inactivation Methods	Pending
P1053 EP 001	14849291.1	09/25/2014	3048899	Bolton; Selvitelli	On-Column Viral Inactivation Methods	Pending
P1053 WO 001	PCT/US2014/057524	09/25/2014	WO2015/048330 A2	Bolton; Selvitelli	On-Column Viral Inactivation Methods	Inactive

FACTOR IX-FC POLYPEPTIDE FORMULATIONS						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1054 US 001	61/794,874	03/15/2013		Brader	Factor IX-Fc Polypeptide Formulations	Inactive

**FACTOR IX-Fc POLYPEPTIDE FORMULATIONS
ASSIGNED TO: BIOGEN MA INC.**

BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1054 US 002	14/776,125	03/14/2014	2016-0000888	Brader	Factor IX Polypeptide Formulations	Pending
P1054 AR 001	P140101135	03/14/2014	095527	Brader	Factor IX Polypeptide Formulations	Pending
P1054 AU 001	2014228938	03/14/2014		Brader	Factor IX Polypeptide Formulations	Pending
P1054 CA 001	2,899,089	03/14/2014		Brader	Factor IX Polypeptide Formulations	Pending
P1054 CL 001	2015-2719	03/14/2014		Brader	Factor IX Polypeptide Formulations	Pending
P1054 CO 001	15-202,814	03/14/2014		Brader	Factor IX Polypeptide Formulations	Pending
P1054 EA 001	201591421	03/14/2014		Brader	Factor IX Polypeptide Formulations	Pending
P1054 EP 001	14764659.0	03/14/2014	2968498	Brader	Factor IX Polypeptide Formulations	Pending
P1054 GC 001	2014/26810	3/16/2014		Brader	Factor IX-Fc Polypeptide Formulations	Pending
P1054 HK 001	16108683.7			Brader	Factor IX-Fc Polypeptide Formulations	Pending
P1054 JP 001	2016-502963	03/14/2014		Brader	Factor IX Polypeptide Formulations	Pending
P1054 PH 001	1-2015-501854	03/14/2014		Brader	Factor IX Polypeptide Formulations	Pending
P1054 SG 001	11201505926V	03/14/2014		Brader	Factor IX Polypeptide Formulations	Pending
P1054 TW 001	103109611	3/14/2014	201524514	Brader	Factor IX-Fc Polypeptide Formulations	Pending
P1054 UY 001	35,463	3/14/2014		Brader	Factor IX-Fc Polypeptide Formulations	Pending
P1054 VE 001	2014-	3/14/2014		Brader	Factor IX-Fc Polypeptide	Pending

FACTOR IX-FC POLYPEPTIDE FORMULATIONS					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
	000382				Formulations
P1054 WO 001	PCT/US14/029010	3/14/2014	WO/2014/144617	Brader	Factor IX Polypeptide Formulations
					Inactive

THROMBIN CLEAVABLE LINKER					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
P1099 US 001	61/840,864	6/28/2013		Chhbra; Kulman; Liu	Thrombin Cleavable Linker
P1099 US 002	14/895,264	6/27/2014	US 2016-0229903 A1	Chhbra; Kulman; Liu	Thrombin Cleavable Linker
P1099 EP 001	14818050.8	6/27/2014	EP3013359A1	Chhbra; Kulman; Liu	Thrombin Cleavable Linker
P1099 WO 001	PCT/US2014/044718	6/27/2014	WO 2014/210547	Chhbra; Kulman; Liu	Thrombin Cleavable Linker
P1099 TW 001	103122510	6/30/2014		Chhbra; Kulman; Liu	Thrombin Cleavable Linker
					Pending

RECOMBINANT FVIII PROTEINS AND USES THEREOF					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
P1101 US 001	61/866,017	8/14/2013		Peters; Kulman	Recombinant FVIII Proteins and Uses Thereof
P1101 US 003	14/912,050	8/14/2014	US 2016-0311885 A1	Peters; Kulman	Recombinant FVIII Proteins and Uses Thereof
P1101 EP 001	14835927.6	8/14/2014	EP3033098 A1	Peters; Kulman	Recombinant FVIII Proteins and Uses Thereof
					Pending

RECOMBINANT FVIII PROTEINS AND USES THEREOF					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
P1101 WO 001	PCT/US2014/05114 7	8/14/2014	WO 2015/023894	Peters; Kulman	Recombinant FVIII Proteins and Uses Thereof
STATUS					
Expired					

ANTI-FVIII ANTIBODIES OR USES THEREOF					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
P1116 US 001	61/834,828	6/13/2013		Kulman	Anti-FVIII Antibodies or Uses Thereof
STATUS					
Expired					
P1116 US 002	61/913,143	12/6/2013		Kulman	Anti-FVIII Antibodies or Uses Thereof
STATUS					
Expired					
P1116US003	14/894,155	6/13/2014	US 2016-0130361 A1	Kulman	Anti-FVIII Antibodies or Uses Thereof
STATUS					
Pending					
P1116 EP 001	14811056.2	6/13/2014	EP3008085 A2	Kulman	Anti-FVIII Antibodies or Uses Thereof
STATUS					
Pending					
P1116 HK 001	16111495.9	10/03/2016		Kulman	Anti-FVIII Antibodies or Uses Thereof
STATUS					
Pending					
P1116 WO 001	PCT/US2014/042374	6/13/2014	WO 2014/201400	Kulman	Anti-FVIII Antibodies or Uses Thereof
STATUS					
Expired					

PURIFICATION OF CHIMERIC FVIII MOLECULES					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
P1155 US 001	61/863,810	8/8/2013		Zhu	Purification and Characterization of a Novel Class of Long-Acting Factor VIII Molecules Containing a VWF Fragment, an Fc Domain, and XTEN Polypeptides
STATUS					
Expired					
P1155 US 002	14/910,5	8/8/2014	US 2016-	Zhu	Purification of chimeric Factor VIII Molecules
STATUS					
Pending					

PURIFICATION OF CHIMERIC FVIII MOLECULES					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
	55		0185817 A1		
P1155 EP 001	1483492 7.7	8/8/2014	EP3043813 A2	Zhu	Purification of chimeric Factor VIII Molecules
P1155 WO 001	PCT/US2 014/0504 11	8/8/2014	WO 2015/02142 3	Zhu	Purification of chimeric Factor VIII Molecules

POPULATION PHARMACOKINETICS TOOLS AND USES THEREOF					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
P1156 US 001	61/913,149	12/06/2013		Jiang	Population Pharmacokinetics Tools And Uses Thereof
P1156 US 002	61/934,286	01/31/2014		Jiang	Population Pharmacokinetics Tools And Uses Thereof
P1156 US 003	61/944,467	02/25/2014		Jiang	Population Pharmacokinetics Tools And Uses Thereof
P1156 US 004	15/101,756	12/06/2014	US 2016-0306945 A1	Jiang	Population Pharmacokinetics Tools And Uses Thereof
P1156 EP 001	14867154.8	12/06/2014	EP3082848 A1	Jiang	Population Pharmacokinetics Tools And Uses Thereof
P1156 WO 001	PCT/US2014 /068956	12/06/2014	WO2015/085 276 A1	Jiang	Population Pharmacokinetics Tools And Uses Thereof

FACTOR VIII POLYPEPTIDE FORMULATION					
ASSIGNED TO: BIOGEN MA INC.					

BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1166 US 001	61/897,742	10/30/2013		Maloney	Factor VIII Polypeptide Formulation	Inactive
P1166 US 002	14/213,180	03/14/2014	2014- 0308280	Maloney; Abdul-Fattah; Gage	Factor VIII Polypeptide Formulations	Allowed
P1166 WO 001	PCT/US14/293 54	03/14/2014	WO/2014/14 4795	Maloney; Abdul-Fattah; Gage	Factor VIII Polypeptide Formulations	Inactive
P1166 AR 001	P140101222	03/14/2014	095597	Maloney; Abdul-Fattah; Gage	Factor VIII Polypeptide Formulations	Pending
P1166 AU 001	2014228506	03/14/2014		Maloney; Abdul-Fattah; Gage	Factor VIII Polypeptide Formulations	Pending
P1166 CA 001	2,899,737	03/14/2014		Maloney; Abdul-Fattah; Gage	Factor VIII Polypeptide Formulations	Pending
P1166 CL 001	2720-2015	03/14/2014		Maloney; Abdul-Fattah; Gage	Factor VIII Polypeptide Formulations	Pending
P1166 CO 001	15-202.828	03/14/2014		Maloney; Abdul-Fattah; Gage	Factor VIII Polypeptide Formulations	Pending
P1166 EA 001	201591439	03/14/2014		Maloney; Abdul-Fattah; Gage	Factor VIII Polypeptide Formulations	Pending
P1166 EP 002	14725816.4	03/14/2014	2968477	Maloney; Abdul-Fattah; Gage	Factor VIII Polypeptide Formulations	Pending
P1166 GC 001	2014/26836	03/16/2014		Maloney	Factor VIII Polypeptide Formulations	Pending
P1166 HK 001	16108672	03/14/2014		Maloney; Abdul-Fattah; Gage	Factor VIII Polypeptide Formulations	Pending
P1166 JP 001	2016-503069	03/14/2014		Maloney; Abdul-Fattah; Gage	Methods Of Using FVIII Polypeptide	Pending
P1166 PH 001	1-2015-501801	03/14/2014		Maloney; Abdul-Fattah; Gage	Factor VIII Polypeptide Formulations	Pending
P1166 SG 001	11201505924T	03/14/2014		Maloney; Abdul-Fattah; Gage	Factor VIII Polypeptide Formulations	Pending
P1166 TW 001	103109616	03/14/2014	201501722	Maloney	Factor VIII Polypeptide Formulations	Pending
P1166 UY	35,462	03/14/2014		Maloney	Factor VIII Polypeptide	Pending

FACTOR VIII POLYPEPTIDE FORMULATION					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
001					Formulations
P1166 VE 001	2014-000384	03/14/2014		Maloney	Factor VIII Polypeptide Formulations
					Pending

PROCOAGULANT FUSION COMPOUND					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
P1173 US 001	61/901,973	11/8/2013		Thorm	Procoagulant Fusion Compound
P1173 US 002	61/981,446	4/18/2014		Thorm	Procoagulant Fusion Compound
P1173 US 003	15/035,145	11/7/2014	US 2016-0289273 A1	Thorm	Procoagulant Fusion Compound
P1173 EP 001	14859449.2	11/7/2014	EP3065769 A1	Thorm	Procoagulant Fusion Compound
P1173 WO 001	PCT/US2014/064541	11/7/2014	WO 2015/070014	Thorm	Procoagulant Fusion Compound
					Expired

OPTIMIZED FACTOR IX GENE					
ASSIGNED TO: BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
P1210 US 001	62/019,069	06/30/2014		Tan; Peters	Optimized Factor IX Gene
P1210 US 002	62/168,565	05/29/2015		Tan; Peters; Liu	Optimized Factor IX Gene
P1210 US 003	15/323,302	12/30/2016		Tan; Peters; Liu	Optimized Factor IX Gene
P1210 EP 001	15814881.7	6/30/2015		Tan; Peters; Liu	Optimized Factor IX Gene
P1210 WO 001	PCT/US2015/038678	6/30/2015	WO 2016/004113	Tan; Peters; Liu	Optimized Factor IX Gene
					Pending

FACTOR IX FUSION PROTEINS AND METHODS OF MAKING AND USING SAME

ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1231 US 001	62/200,590	08/03/2015		Liu; Van Der Flier; Light; Chhabra; Liu; Peters; Kulman	Factor IX Fusion Proteins And Methods of Making And Using Same	Expired
P1231 US 002	62/200,594	08/03/2015		Liu; Van Der Flier; Light; Chhabra; Liu; Peters; Kulman	Factor IX Fusion Proteins And Methods of Making And Using Same	Expired
P1231 US 003	62/281,993	01/22/2016		Liu; Van Der Flier; Light; Chhabra; Liu; Peters; Kulman	Factor IX Fusion Proteins And Methods of Making And Using Same	Pending
P1231 US 004	62/281,998	01/22/2016		Liu; Van Der Flier; Light; Chhabra; Liu; Peters; Kulman	Factor IX Fusion Proteins And Methods of Making And Using Same	Pending
P1231 AR 001	P160102376	08/03/2016		Liu; Van Der Flier; Light; Chhabra; Liu; Peters; Kulman; Ismail	Factor IX Fusion Proteins And Methods of Making And Using Same	Pending
P1231 GC 001	2016/31815	08/03/2016		Liu; Van Der Flier; Light; Chhabra; Liu; Peters; Kulman; Ismail	Factor IX Fusion Proteins And Methods of Making And Using Same	Pending
P1231 PC 001	PCT/US2016/045401	08/03/2016		Liu; Van Der Flier; Light; Chhabra; Liu; Peters; Kulman; Ismail	Factor IX Fusion Proteins And Methods of Making And Using Same	Pending
P1231 TW 001	105124637	08/03/2016		Liu; Van Der Flier; Light; Chhabra; Liu; Peters; Kulman; Ismail	Factor IX Fusion Proteins And Methods of Making And Using Same	Pending

VECTORS COMPRISING OPTIMIZED FVIII GENE						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1237 US 001	62/037,971	8/15/2014		Tan; Peters	Vectors Comprising Optimized FVIII Gene	Expired

OPTIMIZED FVIII GENES						
ASSIGNED TO: BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1289 US 001	62/289,696	02/01/2016		Tan; Liu	Optimized Factor VIII Genes	Pending
P1289 US 002	62/409,739	10/18/2016		Tan; Liu	Optimized FVIII Genes	Pending

BISPECIFIC ANTIBODIES BINDING TO COAGULATION FACTOR IX AND COAGULATION FACTOR X						
ASSIGNED TO: BIOGEN MA INC.,						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1315 US 001	62/425,921	11/23/2016		Leksa; Pearse; Peters	Bispecific Antibodies Binding to Coagulation Factor IX And Coagulation Factor X	Pending

PATENT FAMILIES CO-OWNED BY AMUNIX OPERATING INC AND BIOGEN MA INC.

FACTOR VIII COMPOSITIONS AND METHODS OF MAKING AND USING SAME						
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
X0692 US 001 734.101	61/599,400	2/15/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same	Expired
X0692 US 002 734.301	14/379,192	7/11/2012	US 2015- 0158929 A1	Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same	Pending
X0692 WO 001 734.601	PCT/US2012/04 6326	7/11/2012	WO/2013/12261 7	Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same	Expired
X0692 AU 001	AU 2012327217	7/11/2012	AU 2012327217	Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same	Issued
X0692 AU 002 734.6811	AU 2016210689	8/4/2016		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same	Pending
X0692 BR 001	BR11201402069 4-5	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same	Pending
X0692 CA 001	2864904	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same	Pending
X0692 CL 001	2166-2014	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same	Pending

FACTOR VIII COMPOSITIONS AND METHODS OF MAKING AND USING SAME					
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
X0692 CN 001	201280072346.1	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 CO 001	14-185,382	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 EA 001	201491470	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 EP 001	12868427.1	7/11/2012	EP2814840	Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 HK 001	15104912.0	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 ID 001	P-00201405454	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 IL 001	234108	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 IN 001	7658/DEL/NP/2014	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 JP 001	2014-557620	7/11/2012	JP,2015-512876,A	Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same

FACTOR VIII COMPOSITIONS AND METHODS OF MAKING AND USING SAME					
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
				Peters	
X0692 JP 002	2015-138941	7/10/2015		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 KR 001	2014-7025699	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 MX 001	MX/a/2014/009872	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 MY 001	PI2014002385	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 NZ 001	628800	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 NZ 002 734.7911	723509	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 PH 001	1-2014-501849	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 SG 001	11201404885R	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 SG 002 734.8211	10201606783R	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same

FACTOR VIII COMPOSITIONS AND METHODS OF MAKING AND USING SAME					
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
				Geething; Kulman; Liu; Toby; Jiang; Peters	Using Same
X0692 TH 001	1401004740	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 UA 001	a201409190	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
X0692 ZA 001	2014/06170	7/11/2012		Schellenberger; Chang; Varfaj; Ding; Silverman; Wang; Spink; Stemmer; Geething; Kulman; Liu; Toby; Jiang; Peters	Factor VIII Compositions and Methods of Making and Using Same
					Pending

FACTOR VIII COMPLEX WITH XTEN AND VON WILLEBRAND FACTOR PROTEIN, AND USES THEREOF					
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.					
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE
P0962 US 001	61/670,401	7/11/2012		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof
P0962 US 002	61/759,819	2/1/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof
P0962 US 003	61/801,504	3/15/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof
P0962 US 004	61/801,544	3/15/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof
					Expired

FACTOR VIII COMPLEX WITH XTEN AND VON WILLEBRAND FACTOR PROTEIN, AND USES THEREOF						
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P0962 US 005 743.105	61/827,158	5/24/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Expired
P0962 US 006 743.106	61/840,811	6/28/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Expired
P0962 WO 001 743.601	PCT/US2013 /049989	7/10/2013	WO/2014/0118 19	Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Expired
P0962 US 007 743.831	14/413,765	7/10/2013	US 2015- 0266943 A1	Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 AR 001	P130102467	7/11/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 TW 001	102124926	7/11/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 AE 001	48/2015	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 AU 001	2013290173	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 BR 001	BR11201500 0267-6	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 CA 001	2878679	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 CL 001	60-2015	7/10/2013		Chhabra; Liu; Change;	Factor VIII Complex With Xten	Pending

FACTOR VIII COMPLEX WITH XTEN AND VON WILLEBRAND FACTOR PROTEIN, AND USES THEREOF						
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
				Peters; Kulman	And Von Willebrand Factor Protein, And Uses Thereof	
P0962 CN 001	20138004691 4.5	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 CO 001	15-008.422	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 EA 001	201590198	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 EP 001	13816031.2	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 HK 001	15112122.9	12/08/2015		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 IL 001	236412	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 IN 001	105/DELNP/ 2015	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 JP 001	2015-521785	7/10/2013	JP,2015-527882,A	Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 KR 001	2015-7003523	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 MX 001	MX/a/2015/0 00397	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending

FACTOR VIII COMPLEX WITH XTEN AND VON WILLEBRAND FACTOR PROTEIN, AND USES THEREOF						
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
				Chhabra; Liu; Change; Peters; Kulman	Protein, And Uses Thereof	
P0962 NZ 001	703366	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 PH 001	1-2015-500039	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 SG 001	11201500045 R	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 TH 001	1501000097	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 UA 001	a201500228	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending
P0962 ZA 001	2015/00162	7/10/2013		Chhabra; Liu; Change; Peters; Kulman	Factor VIII Complex With Xten And Von Willebrand Factor Protein, And Uses Thereof	Pending

FACTOR VIII-XTEN FUSIONS AND USES THEREOF						
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1154 US 001 745.101	61/866,016	8/14/2013		Liu; Chang; Kulman; Schellenberger, Jiang; Peters; Chhabra	Factor VIII-Xten Fusions And Uses Thereof	Expired
P1154 US 003 745.301	14/912,047	8/14/2014	-	Liu; Chang; Kulman; Schellenberger, Jiang; Peters; Chhabra	Factor VIII-Xten Fusions And Uses Thereof	Pending

P1154 WO 001 745.601	PCT/US2014/051144	8/14/2014	WO/2015/023891	Liu; Chang; Kulman; Schellenberger, Jiang; Peters; Chhabra	Factor VIII-Xten Fusions And Uses Thereof	Expired
P1154 TW 001 745.851	103127922	8/14/2014		Liu; Chang; Kulman; Schellenberger, Jiang; Peters; Chhabra	Factor VIII-Xten Fusions And Uses Thereof	Pending
P1154 EP 001 745.611	14835828.6	8/14/2014		Liu; Chang; Kulman; Schellenberger, Jiang; Peters; Chhabra	Factor VIII-Xten Fusions And Uses Thereof	Pending

THROMBIN CLEAVABLE LINKER WITH XTEN AND ITS USES THEREOF						
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1100 US 001 748.101	61/840,872	6/28/2013		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Expired
P1100 WO 001 748.601	PCT/US2014/044731	6/27/2014	WO/2014/210558	Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Expired
P1100 US 002 748.831	US 14/894,108	6/27/2014	-	Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 AU 001	2014302100	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 BR 001	BR112015031194-6	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 CA 001	2,913,078	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 CL 001	3710-2015	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 CN 001	201480029781.5	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 CO 001	15-276.531	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 EA 001	201592022	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending

THROMBIN CLEAVABLE LINKER WITH XTEN AND ITS USES THEREOF						
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1100 EP 001 748.611	14817900.5	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 HK 001	16111718	10/11/201 6		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 IL 001	242436	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 IN 001	10480/DELNP/2 015	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 JP 001	2016-524268	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 KR 001	2015-7033268	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 MX 001	MX/a/2015/0165 67	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 NZ 001	713904	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 PH 001	1-2015-502614	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 SG 001	11201509313P	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 TW 001	103122511	6/30/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 TH 001	1501006811	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 UA 001	a 2015 12417	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending
P1100 ZA 001	2015/08444	6/27/2014		Chhabra; Kulman; Liu	Thrombin Cleavable Linker With Xten And Its Uses Thereof	Pending

FACTOR VIII CHIMERIC PROTEINS AND USES THEREOF						
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1179 US 001 749.101	61/926,226	1/10/2014		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Expired
P1179 US 002 749.102	61/988,104	5/2/2014		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Expired
P1179 US 003	15/110,673	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 AE 001	865/2016	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 AU 001	2015204646	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 BR 001	BR1120160155122	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 CA 001	2,935,954	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 CL 001	1749-2016	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 CN 001	2.0158E+11	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 CO 001	NC2016/0000175	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 EA 001	201691111	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 EP 001	15735473.9	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 IL 001	246476	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 IN 001	2.01617E+11	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 JP 001	2016-545930	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 KR 001	2016-7021744	1/9/2015		Chhabra; Liu	Factor VIII Chimeric	Pending

FACTOR VIII CHIMERIC PROTEINS AND USES THEREOF						
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
					Proteins And Uses Thereof	
P1179 MX 001	MX/a/2016/008958	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 MY 001	P12016001276	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 NZ 001	721544	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 PH 001	1-2016-501323	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 SG 001	11201605242Y	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 TH 001	1601004034	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 UA 001	a201607049	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 ZA 001	2016/04655	1/9/2015		Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Pending
P1179 WO 001 749.601	PCT/US2015/01073 8	1/9/2015	WO/2015/106052	Chhabra; Liu	Factor VIII Chimeric Proteins And Uses Thereof	Active

CHIMERIC FVII-XTEN MOLECULES AND USES THEREOF						
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1098 US 001 747.101	61/829,878	05/31/2013		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Expired
P1098 US 002 747.102	61/883,707	09/27/2013		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Expired
P1098 US 003	61/901,954	11/08/2011		Salas	Chimeric FVII-Xten	Expired

CHIMERIC FVII-XTEN MOLECULES AND USES THEREOF						
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
747.103		3			Molecules And Uses Thereof	
P1098 US 004 747.104	61/988,105	05/02/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Expired
P1098 US 005 747.831	14/894,101	05/30/201 4	US 2016-0115467 A1	Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 AR 001	P140102147	05/30/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 AU 001	2014273881	05/30/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 BR 001	BR112015029387-5	05/30/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 CA 001	2,912,654	05/30/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 CL 001	3472-2015	05/30/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 CN 001	201480028641.6	05/30/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 CO 001	15-283.434	05/30/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 EA 001	201592023	05/30/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 EP 001	14804745.9	05/30/201 4	EP3004159 A2	Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 IL 001	242435	05/30/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 IN 001	10504/DELNP/2015	05/30/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 JP 001	N/A	05/30/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 KR 001	2015-7032744	05/30/201 4		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned

CHIMERIC FVII-XTEN MOLECULES AND USES THEREOF						
ASSIGNED TO: AMUNIX OPERATING INC. AND BIOGEN MA INC.						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STATUS
P1098 MX 001	MX/a/2015/016299	05/30/2014		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 NZ 001	713903	05/30/2014		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 WO 001 747.601	PCT/US2014/040370	05/30/2014	WO/2014/194282	Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 PH 001	1-2015-502572	05/30/2014		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 SG 001	11201509260R	05/30/2014		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 TH 001	1501006810	05/30/2014		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 TW 001	103118805	05/29/2014		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 UA 001	a201512416	05/30/2014		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 ZA 001	2015/08269	05/30/2014		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned
P1098 VE 001	2014-000677	05/30/2014		Salas	Chimeric FVII-Xten Molecules And Uses Thereof	Abandoned

PATENT FAMILIES CO-OWNED BY BIOGEN MA INC AND A THIRD PARTY

METHODS OF REDUCING IMMUNOGENICITY AGAINST FACTOR VIII IN INDIVIDUALS UNDERGOING FACTOR VIII THERAPY						
ASSIGNED TO: BIOGEN MA INC. AND PUGET SOUND BLOOD CENTER						
BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STA TUS
P0971 US001	61/586,103	01/12/2012		Jiang; Liu	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Inactive
P0971 US 002	61/668,961	07/06/2012		Jiang; Krishnamoorthy; Liu	Method Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Inactive
P0971 US 003	14/371,931	01/12/2013	2014-0370035	Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Pending
P0971 AU 001	2013204237	01/12/2013		Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Allowed
P0971 AU 002	2016210768	08/05/2016		Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Pending
P0971 BR 001	BR112014017111-4	01/12/2013		Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Pending
P0971 CA 001	2,863,329	01/12/2013		Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Pending
P0971 CN 001	201380013831.6	01/12/2013	104254614	Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Pending
P0971 EA 001	201491211	01/12/2013		Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Pending

METHODS OF REDUCING IMMUNOGENICITY AGAINST FACTOR VIII IN INDIVIDUALS UNDERGOING FACTOR VIII THERAPY

ASSIGNED TO: BIOGEN MA INC. AND PUGET SOUND BLOOD CENTER

BIOGEN REF. NO.	S/N PUB NO.	FILING DATE	PUB/PAT NO.	INVENTORS	TITLE	STA TUS
					Undergoing Factor VIII Therapy	
P0971 EP 001	13735995. 6	01/12/2013	2802668	Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Pending
P0971 IL 001	233565	01/12/2013		Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Pending
P0971 JP 001	2014- 552355	01/12/2013	2015- 504898	Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Pending
P0971 NZ 001	627078	01/12/2013		Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Granted
P0971 OM 001	OM/P/201 4/00146	01/12/2013		Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Pending
P0971 QA 001	QA/20140 7/00259	01/12/2013		Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Pending
P0971 UA 001	a20140825 9	01/12/2013		Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Pending
P0971 WO 001	PCT/US20 13/021332	01/12/2013	WO 2013/10678 9	Jiang; Josephson; Krishnamoorthy; Liu; Pierce	Methods Of Reducing Immunogenicity Against Factor VIII In Individuals Undergoing Factor VIII Therapy	Inactive