

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT5350079

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
	Name	Execution Date
	IONIS PHARMACEUTICALS, INC.	01/07/2019
RECEIVING PARTY DATA		
Name:	BIOGEN MA INC.	
Street Address:	225 BINNEY STREET	
City:	CAMBRIDGE	
State/Country:	MASSACHUSETTS	
Postal Code:	02142	
PROPERTY NUMBERS Total: 1		
Property Type	Number	
Application Number:	15301004	
CORRESPONDENCE DATA		
Fax Number:	(877)769-7945	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>		
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Email:	apsi@fr.com	
Correspondent Name:	JOSEPH J. KOIPALLY	
Address Line 1:	FISH & RICHARDSON P.C.	
Address Line 2:	P.O.BOX 1022	
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ATTORNEY DOCKET NUMBER:	13751-0317US1	
NAME OF SUBMITTER:	CAROL TYRRELL	
SIGNATURE:	/Carol Tyrrell/	
DATE SIGNED:	01/30/2019	
Total Attachments: 8		
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PATENT

REEL: 048188 FRAME: 0828

ASSIGNMENT

WHEREAS, Ionis Pharmaceuticals, Inc. ("Assignor"), a Delaware Corporation, having a place of business at 2855 Gazelle Court, Carlsbad, California 92010 is the sole owner of all right, title and interest in and to certain patents and/or patent applications set forth in Exhibit A ("Patents"), which Exhibit A is attached hereto and hereby made a part hereof; and

WHEREAS, Biogen MA Inc. ("Assignee"), a Massachusetts Corporation, having a place of business at 225 Binney St., Cambridge, MA, 02142, is desirous of acquiring the entire right, title and interest in and to the Patent Rights (as defined below);

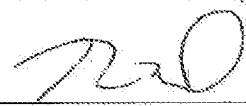
NOW, THEREFORE, BE IT KNOWN, that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged said Assignor hereby assigns to said Assignee, its successors and assigns, the entire right, title and interest in and to the Patents in Exhibit A, hereto annexed, including without limitation:

- (a) the Patent(s) in each jurisdiction in which the Patent(s) was/is validated and all patent applications, patents and supplementary protection certificates which may derive or result from the same, including any divisionals, continuations, continuation-in-parts, reissues, reexaminations, extensions and registrations in relation to any thereof and all and any other rights in inventions comprised in the above (together referred to as "Patent Rights");
- (b) the benefit of all priority rights of the Patents; and
- (c) the right to seek and obtain registrations in other countries with respect to the Patents or any other patent included in the Patent Rights.

The Assignor agrees to execute any further documents and to do all things which the Assignee may require in order to vest or confirm the vesting in the Assignee (or the Assignee's successors in title or nominees as the case may be) of the Patents and all other Patent Rights in all relevant jurisdictions and of all other property right, title and interest intended to be assigned, transferred or granted to the Assignee hereunder and to give the Assignee the full benefit of this Assignment including doing all acts which may be necessary or desirable to record the Patents in the name of the Assignee in all relevant jurisdictions. The Assignor hereby authorizes the Assignee and the Assignee's agents to sign all such forms on behalf of the Assignor as the Assignee considers appropriate in order to record the Patents and any other Patent Rights in the name of the Assignee.

IN WITNESS of which the parties have executed this Assignment in accordance with the statutes
by duly authorized officers as of the date of the later of the parties' signatures.

EXECUTED by the ASSIGNOR
IONIS PHARMACEUTICALS, INC.

Signature: 

Name: Patrick R. O'Neil

Title: Senior Vice President, Legal and General Counsel

Date: January 7, 2019

In the presence of a Notary Public

EXECUTED by the ASSIGNEE
BIOGEN MA INC.

Signature: 

Name: **Karoline K. Shair**

Assistant Secretary

Title: **IP Counsel**

Date: January 10, 2019

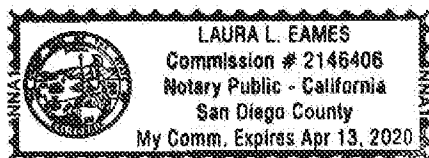
In the presence of a Notary Public

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
) ss.
County of San Diego)


On January 7, 2019 before me, Laura L. Eames, Notary Public, personally appeared Patrick R. O'Neil, who is proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.



[SEAL]

WITNESS my hand and official seal.


Signature of Notary

State of Massachusetts
County of Middlesex) ss.

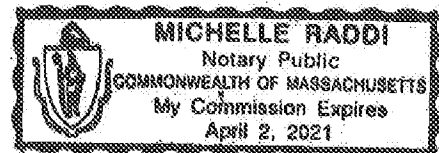
On January 10, 2019, before me Michelle Raddi the undersigned,
personally appeared Karoline K. Shair, personally known to me or
proved to me on the basis of satisfactory evidence to be the individual whose name is
subscribed to the within instrument and acknowledged to me that he executed the same in his
capacity, and that by his signature on the instrument, the individual, or the person upon behalf
of which the individual acted, executed the instrument.

WITNESS my hand and official seal.

Michelle Raddi

Signature of Notary

[SEAL]



Appendix A

Ionis File Number	Country/Territory	Status	Application Number	Filing Date	Grant Date	Title
Redacted						

Ionis File Number	Country/Territory	Status	Application Number	Filing Date	Grant Date	Title
Redacted						
BIOL0240USA	USA	Allowed	15/301,004	9/30/2016		COMPOSITIONS FOR MODULATING SOD-1 EXPRESSION
Redacted						

Ionis File Number	Country/ Territory	Status	Application Number	Filing Date	Grant Date	Title
Redacted						

