

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4520407

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
BRANDON BERRY	11/16/2015
JUSTIN MORETTO	01/28/2016
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	BIOGEN MA INC.
<b>Street Address:</b>	250 BINNEY STREET
<b>City:</b>	CAMBRIDGE
<b>State/Country:</b>	MASSACHUSETTS
<b>Postal Code:</b>	02142
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15322560
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(617)646-8646
<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>	
<b>Phone:</b>	617-646-8000
<b>Email:</b>	patents_PatrickW@wolfgreenfield.com
<b>Correspondent Name:</b>	JOSEPH M. BOWLER
<b>Address Line 1:</b>	600 ATLANTIC AVENUE
<b>Address Line 2:</b>	WOLF GREENFIELD
<b>Address Line 4:</b>	BOSTON, MASSACHUSETTS 02210
<b>ATTORNEY DOCKET NUMBER:</b>	B1152.70040US01
<b>NAME OF SUBMITTER:</b>	JOSEPH M. BOWLER
<b>SIGNATURE:</b>	/Joseph M. Bowler/
<b>DATE SIGNED:</b>	07/26/2017
<b>Total Attachments: 10</b>	
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ASSIGNMENT

For valuable consideration, we, Brandon Berry, of Boston, Massachusetts; and Justin Moretto, of Apex, North Carolina, hereby assign to BIOGEN MA INC., a corporation of Massachusetts having a place of business at:

250 Binney Street  
Cambridge, Massachusetts 02142

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 a PCT application entitled CROSS-SCALE MODELING OF BIOREACTOR CULTURES USING RAMAN SPECTROSCOPY, filed July 2, 2015, and assigned PCT Serial Number PCT/US15/39011, this assignment including said application, 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 all treaties; and we hereby confirm our prior authorization of the Assignee, as of July 2, 2015, to apply in all countries in our names 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: 16 Nov 15

Brandon Berry  
Brandon Berry

Witness:  
16 Nov 16  
Date

Chris Kwiatkowski  
Signature

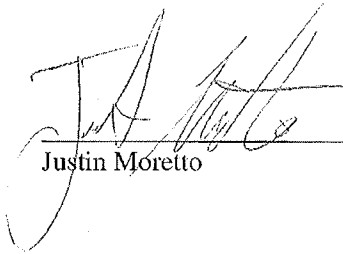
Name: CHRIS KWIAKOWSKI  
Address: 2372 GRANT AVE  
RALEIGH NC 27608

Witness:  
17 Nov 16  
Date

Marcelo Anderson  
Signature

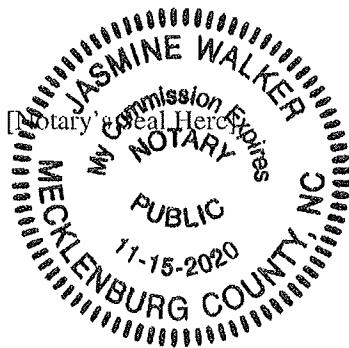
Name: Marcelo Anderson  
Address: 1012 Clovelly Court  
Raleigh NC 27614

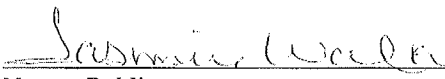
DATE: 01-28-2016

  
Justin Moretto

STATE OF NORTH CAROLINA)  
COUNTY OF MECKLENBURG) SS.

Before me this 28th day of January, 2016, personally appeared Justin Moretto known to me to be the person whose name is subscribed to the foregoing Assignment, proved to me through satisfactory evidence of identification in the form of NC Drivers License, and acknowledged that he executed the same as his free act and deed for the purposes therein contained.



  
Notary Public  
My Commission Expires:

D  
PC

The Commonwealth of Massachusetts

William Francis Galvin

Secretary of the Commonwealth

One Ashburton Place, Boston, Massachusetts 02108-1512

FORM MUST BE TYPED

Articles of Amendment

FORM MUST BE TYPED

(General Laws Chapter 156D, Section 10.06; 950 CMR 113.34)

(1) Exact name of corporation: Biogen Idec MA Inc. 043002117

(2) Registered office address: 84 State St. Boston, MA 02109  
(number, street, city or town, state, zip code)

(3) These articles of amendment affect article(s): ARTICLE I  
(specify the number(s) of article(s) being amended (I-VI))

(4) Date adopted: March 23, 2015  
(month, day, year)

(5) Approved by:

(check appropriate box)

- ☐ the incorporators.
- ☐ the board of directors without shareholder approval and shareholder approval was not required.
- ☒ the board of directors and the shareholders in the manner required by law and the articles of organization.

(6) State the article number and the text of the amendment. Unless contained in the text of the amendment, state the provisions for implementing the exchange, reclassification or cancellation of issued shares.

ARTICLE I: The exact name of the corporation is "Biogen MA Inc."

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P.C.

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PATENT

REEL: 043097 FRAME: 0472

To change the number of shares and the par value, \* if any, of any type, or to designate a class or series, of stock, or change a designation of class or series of stock, which the corporation is authorized to issue, complete the following:

Total authorized prior to amendment:

WITHOUT PAR VALUE		WITH PAR VALUE		
TYPE	NUMBER OF SHARES	TYPE	NUMBER OF SHARES	PAR VALUE


Total authorized after amendment:

WITHOUT PAR VALUE		WITH PAR VALUE		
TYPE	NUMBER OF SHARES	TYPE	NUMBER OF SHARES	PAR VALUE

(7) The amendment shall be effective at the time and on the date approved by the Division, unless a later effective date not more than 90 days from the date and time of filing is specified: \_\_\_\_\_

*\*G.L. Chapter 156D eliminates the concept of par value, however a corporation may specify par value in Article III. See G.L. Chapter 156D, Section 6.21, and the comments relative thereto.*

Signed by: \_\_\_\_\_

  
(signature of authorized individual)

- ☐ Chairman of the board of directors,
- ☐ President,
- ☒ Other officer,
- ☐ Court-appointed fiduciary,

on this 23<sup>rd</sup> day of March, 2015.



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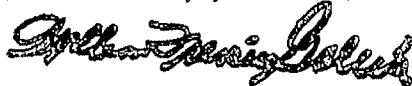
# COMMONWEALTH OF MASSACHUSETTS

William Francis Galvin  
Secretary of the Commonwealth  
One Ashburton Place, Boston, Massachusetts 02108-1512

## Articles of Amendment (General Laws Chapter 156D, Section 10.06; 950 CMR 113.34)

I hereby certify that upon examination of these articles of amendment, it appears that the provisions of the General Laws relative thereto have been complied with, and the filing fee in the amount of \$100 having been paid, said articles are deemed to have been filed with me this 23 day of March, 2015, at 3:09 a.m.  
*time*

Effective date: \_\_\_\_\_  
(must be within 90 days of date submitted)



WILLIAM FRANCIS GALVIN  
Secretary of the Commonwealth

Filing fee: Minimum filing fee \$100 per article amended, stock increases \$100 per 100,000 shares, plus \$100 for each additional 100,000 shares or any fraction thereof.

Keen  
Examiner

JMD  
Name approval

C

M

TO BE FILLED IN BY CORPORATION  
Contact Information:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

Email: \_\_\_\_\_

Upon filing, a copy of this filing will be available at [www.sec.state.ma.us/cor](http://www.sec.state.ma.us/cor).  
If the document is rejected, a copy of the rejection sheet and rejected document will be available in the rejected queue.

SECRETARY OF THE  
COMMONWEALTH  
2015 MAR 23 PM 3:09  
CORPORATIONS DIVISION

#0900119736

D  
PC

# The Commonwealth of Massachusetts

William Francis Galvin  
Secretary of the Commonwealth  
One Ashburton Place, Boston, Massachusetts 02108-1512

FORM MUST BE TYPED

## Statement of Change of Supplemental Information Contained in Article VIII of Articles of Organization

FORM MUST BE TYPED

(General Laws Chapter 156D, Section 2.02 and Section 8.45; 950 CMR 113.17)

(1) Exact name of the corporation: Biogen MA Inc.

(2) Current registered office address: 84 State St., Boston, MA 02109  
(number, street, city or town, state, zip code)

(3) The following supplemental information has changed:

(check appropriate box)

- ☐ Names and addresses of the directors, president, treasurer and secretary (an address need not be specified if the business address of the officer or director is the same as the principal office location):

President:

Treasurer:

Secretary:

Director(s):

- ☐ Fiscal year end: \_\_\_\_\_  
(month, day)

- ☒ Principal office address: 250 Binney St., Cambridge, MA 02142  
(number, street, city or town, state, zip code)

- ☐ Type of business in which the corporation intends to engage:  
\_\_\_\_\_

- ☐ Other:  
\_\_\_\_\_

This certificate is effective at the time and on the date approved by the Division, unless a later effective date not more than 90 days from the date of filing is specified: \_\_\_\_\_

Signed by: Martha Altman  
(signature of authorized individual)

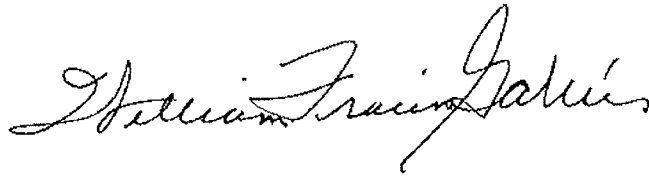
- ☐ Chairman of the board of directors,
- ☐ President,
- ☒ Other officer,
- ☐ Court-appointed fiduciary,

on this 23rd day of March, 2015.

THE COMMONWEALTH OF MASSACHUSETTS

I hereby certify that, upon examination of this document, duly submitted to me, it appears that the provisions of the General Laws relative to corporations have been complied with, and I hereby approve said articles; and the filing fee having been paid, said articles are deemed to have been filed with me on:

March 24, 2015 11:03 AM

A handwritten signature in black ink, reading "William Francis Galvin". The signature is written in a cursive, flowing style with a large initial 'W' and 'G'.

WILLIAM FRANCIS GALVIN

*Secretary of the Commonwealth*