

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5585779

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
YUYA OGURO	05/09/2019
SHIGEMITSU MATSUMOTO	05/09/2019
TAKESHI WAKABAYASHI	05/09/2019
NORIHITO TOKUNAGA	05/09/2019
TAKU KAMEI	05/09/2019
MITSUHIRO ITO	05/09/2019
SATOSHI MIKAMI	05/09/2019
MASAKI SETO	05/09/2019
SHINJI MORIMOTO	05/09/2019
SHINJI NAKAMURA	05/09/2019
SACHIE TAKASHIMA	05/09/2019
MASATAKA MURAKAMI	05/09/2019
MASAKI DAINI	05/09/2019
MAKOTO KAMATA	05/09/2019
MINORU NAKAMURA	05/09/2019
YASUFUMI WADA	04/18/2019
HIROYUKI KAKEI	05/09/2019
KAZUAKI TAKAMI	05/09/2019
TAISUKE TAWARAISHI	05/09/2019
JUMPEI AIDA	05/08/2019
KOUICHI IWANAGA	04/16/2019
SATOSHI YAMAMOTO	05/16/2019
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	TAKEDA PHARMACEUTICAL COMPANY LIMITED
<b>Street Address:</b>	1-1 DOSHOMACHI 4-CHOME
<b>City:</b>	CHUO-KU, OSAKA-SHI, OSAKA
<b>State/Country:</b>	JAPAN
<b>Postal Code:</b>	541-0045
<b>PROPERTY NUMBERS Total: 1</b>	

<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16366710

  

**CORRESPONDENCE DATA**

**Fax Number:** (202)672-5399

*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.*

**Phone:** 2026725300

**Email:** dkim@foley.com, ipdocketing@foley.com

**Correspondent Name:** FOLEY & LARDNER LLP

**Address Line 1:** 3000 K STREET, N.W.

**Address Line 2:** SUITE 600

**Address Line 4:** WASHINGTON, D.C. 20007-5109

<b>ATTORNEY DOCKET NUMBER:</b>	084437-0300
<b>NAME OF SUBMITTER:</b>	DON KIM FOR STEPHEN B. MAEBIUS
<b>SIGNATURE:</b>	/Don Kim/
<b>DATE SIGNED:</b>	06/21/2019

**Total Attachments: 32**

source=Assignment#page1.tif  
source=Assignment#page2.tif  
source=Assignment#page3.tif  
source=Assignment#page4.tif  
source=Assignment#page5.tif  
source=Assignment#page6.tif  
source=Assignment#page7.tif  
source=Assignment#page8.tif  
source=Assignment#page9.tif  
source=Assignment#page10.tif  
source=Assignment#page11.tif  
source=Assignment#page12.tif  
source=Assignment#page13.tif  
source=Assignment#page14.tif  
source=Assignment#page15.tif  
source=Assignment#page16.tif  
source=Assignment#page17.tif  
source=Assignment#page18.tif  
source=Assignment#page19.tif  
source=Assignment#page20.tif  
source=Assignment#page21.tif  
source=Assignment#page22.tif  
source=Assignment#page23.tif  
source=Assignment#page24.tif  
source=Assignment#page25.tif  
source=Assignment#page26.tif  
source=Assignment#page27.tif

source=Assignment#page28.tif  
source=Assignment#page29.tif  
source=Assignment#page30.tif  
source=Assignment#page31.tif  
source=Assignment#page32.tif

## ASSIGNMENT

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, each undersigned inventor (hereinafter referred to singly and collectively as "ASSIGNOR") has sold, assigned, and transferred, and by these presents hereby sells, assigns, and transfers, unto

TAKEDA PHARMACEUTICAL COMPANY LIMITED  
1-1 Doshomachi 4-chome  
Chuo-ku, Osaka-shi, Osaka 541-0045 Japan

(hereinafter referred to as "ASSIGNEE") its successors and assigns, the full and exclusive right, title and interest for the United States, its territories and possessions in and to this invention relating to

### HETEROCYCLIC COMPOUND AND USE THEREOF

as set forth in this United States Patent Application

Check  
one

☐ executed concurrently herewith  
☐ executed on \_\_\_\_\_  
☒ Serial No. 16/366,710 Filed March 27, 2019  
and

as well as in and to (a) all improvements and modifications of the above-identified invention or inventions, (b) the above-identified application and all other applications for Letters Patent of the United States for above-identified invention or inventions and all improvements and modifications thereof, (c) all Letters Patent which may issue from said applications in the United States, (d) all divisions, continuations, reissues, and extensions of said applications and Letters Patent, and (e) the right to claim for any of said applications the full benefits and priority rights under the Patent Cooperation Treaty, the Paris Convention and any other international agreement; such right, title, and interest to be held and enjoyed by ASSIGNEE, its successors and assigns, to the full end of the term or terms for which any and all such Letters Patent may be granted as fully and entirely as would have been held and enjoyed by ASSIGNOR had this Assignment not been made.

ASSIGNOR HEREBY AUTHORIZES AND REQUESTS the Commissioner of Patents and Trademarks to issue said Letters Patent to ASSIGNEE as assignee of the entire interest, for the sole use and benefit of ASSIGNEE, its successors and assigns.

ASSIGNOR HEREBY AGREES (a) to communicate to ASSIGNEE, its successors and assigns, or their representative or agents, all facts and information known or available to ASSIGNOR respecting said invention or inventions, improvements, and modifications including evidence for interference, reexamination, reissue, opposition, revocation, extension, or infringement purposes or other legal, judicial, or administrative proceedings, whenever requested by ASSIGNEE; (b) to testify in person or by affidavit as required by ASSIGNEE, its successors and assigns, in any such proceeding in the United States; (c) to execute and deliver, upon request by ASSIGNEE, all lawful papers including, but not limited to, original, divisional, continuation, and reissue applications, renewals, assignments, powers of attorney, oaths, affidavits, and declarations, depositions; and (d) to provide all reasonable assistance to ASSIGNEE, its successors and assigns, in obtaining and enforcing proper title in and protection for said invention or

inventions, improvements, and modifications under the intellectual property laws of the United States and countries foreign thereto.

ASSIGNOR HEREBY REPRESENTS AND WARRANTS that ASSIGNOR has the full and unencumbered right to sell, assign, and transfer the interests sold, assigned, and transferred herein, and that ASSIGNOR has not executed and will not execute any document or instrument in conflict herewith.

ASSIGNOR HEREBY GRANTS to the law firm of **Foley & Lardner LLP** the power and authority to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

ASSIGNOR UNDERSTANDS AND AGREES that the attorneys and agents of the law firm of **Foley & Lardner LLP** do not personally represent ASSIGNOR OR ASSIGNOR's legal interests, but instead represent the interests of ASSIGNEE; since said attorneys and agents cannot provide legal advice to ASSIGNOR with respect to this Assignment, ASSIGNOR acknowledges its right to seek its own independent legal counsel.

**NAME AND SIGNATURE OF INVENTOR**

Name: Yuya OGURO

SIGNATURE

*Yuya Oguro*

Date

May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA

SIGNATURE

*H.K. May 9, 2019*

*Tomohiro Mihara*

Date

May 9, 2019

Name: Haruyo KONDO

SIGNATURE

*Haruyo Kondo*

Date

May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Shigemitsu MATSUMOTO

SIGNATURE

*Shigemitsu Matsumoto*

Date

May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA

SIGNATURE

*Tomohiro Mihara*

Date

May 9, 2019

Name: Haruyo KONDO

SIGNATURE

*Haruyo Kondo*

Date

May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Takeshi WAKABAYASHI

SIGNATURE

*Takeshi Wakabayashi*

Date

May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA

SIGNATURE

*Tomohiro Mihara*

Date

May 9, 2019

Name: Haruyo KONDO

SIGNATURE

*Haruyo Kondo*

Date

May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Norihito TOKUNAGA

SIGNATURE

*Norihito Tokunaga*

Date

May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA

SIGNATURE

*Tomohiro Mihara*

Date

May 9, 2019

Name: Haruyo KONDO

SIGNATURE

*Haruyo Kondo*

Date

May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Taku KAMEI SIGNATURE Taku Kamei Date May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA SIGNATURE Tomohiro Date May 9, 2019

Name: Haruyo KONDO SIGNATURE Haruyo Kondo Date May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Mitsuhiro ITO SIGNATURE Mitsuhiro Ito Date May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA SIGNATURE Tomohiro Date May 9, 2019

Name: Haruyo KONDO SIGNATURE Haruyo Kondo Date May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Satoshi MIKAMI SIGNATURE Satoshi Mikami Date May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA SIGNATURE Tomohiro Date May 9, 2019

Name: Haruyo KONDO SIGNATURE Haruyo Kondo Date May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Masaki SETO SIGNATURE Masaki Seto Date May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA SIGNATURE Tomohiro Date May 9, 2019

Name: Haruyo KONDO SIGNATURE Haruyo Kondo Date May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Shinji MORIMOTO      SIGNATURE Shinji Morimoto      Date May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA      SIGNATURE Tomohiro Mihara      Date May 9, 2019  
Name: Haruyo KONDO      SIGNATURE Haruyo Kondo      Date May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Shinji NAKAMURA      SIGNATURE Shinji Nakamura      Date May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA      SIGNATURE Tomohiro Mihara      Date May 9, 2019  
Name: Haruyo KONDO      SIGNATURE Haruyo Kondo      Date May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Sachie TAKASHIMA      SIGNATURE Sachie Takashima      Date May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA      SIGNATURE Tomohiro Mihara      Date May 9, 2019  
Name: Haruyo KONDO      SIGNATURE Haruyo Kondo      Date May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Masataka MURAKAMI      SIGNATURE Masataka Murakami      Date May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA      SIGNATURE Tomohiro Mihara      Date May 9, 2019  
Name: Haruyo KONDO      SIGNATURE Haruyo Kondo      Date May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Masaki DAINI      SIGNATURE Masaki Daini      Date May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA      SIGNATURE Tomohiro Mihara      Date May 9, 2019

Name: Haruyo KONDO      SIGNATURE Haruyo Kondo      Date May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Makoto KAMATA      SIGNATURE Makoto Kamata      Date May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA      SIGNATURE Tomohiro Mihara      Date May 9, 2019

Name: Haruyo KONDO      SIGNATURE Haruyo Kondo      Date May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Minoru NAKAMURA      SIGNATURE Minoru Nakamura      Date May 9, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name: Tomohiro MIHARA      SIGNATURE Tomohiro Mihara      Date May 9, 2019

Name: Haruyo KONDO      SIGNATURE Haruyo Kondo      Date May 9, 2019

**NAME AND SIGNATURE OF INVENTOR**

Name: Yasufumi WADA      SIGNATURE \_\_\_\_\_      Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: \_\_\_\_\_      SIGNATURE \_\_\_\_\_      Date \_\_\_\_\_

Name: \_\_\_\_\_      SIGNATURE \_\_\_\_\_      Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Hiroyuki KAKEI

SIGNATURE

H. Kakei

Date

May 9, 2019 <sup>276</sup>  
~~May 8, 2019~~**NAME AND SIGNATURE OF WITNESSES**

Name:

Tomohiro MIHARA

SIGNATURE

Tomohiro

Date

May 9, 2019

Name:

Haruyo KONDO

SIGNATURE

Haruyo Kondo

Date

May 9, 2019**NAME AND SIGNATURE OF INVENTOR**

Name: Kazuaki TAKAMI

SIGNATURE

Kazuaki Takami

Date

May 9 2019**NAME AND SIGNATURE OF WITNESSES**

Name:

Tomohiro MIHARA

SIGNATURE

Tomohiro

Date

May 9, 2019

Name:

Haruyo KONDO

SIGNATURE

Haruyo Kondo

Date

May 9, 2019**NAME AND SIGNATURE OF INVENTOR**

Name: Taisuke TAWARAISHI

SIGNATURE

Taisuke Tanawarishi

Date

May. 9 2019**NAME AND SIGNATURE OF WITNESSES**

Name:

Tomohiro MIHARA

SIGNATURE

Tomohiro

Date

May 9, 2019

Name:

Haruyo KONDO

SIGNATURE

Haruyo Kondo

Date

May 9, 2019**NAME AND SIGNATURE OF INVENTOR**

Name: Jumpei AIDA

SIGNATURE

Jumpei Aida

Date

May 8, 2019**NAME AND SIGNATURE OF WITNESSES**

Name:

Haruyo KONDO

SIGNATURE

Haruyo Kondo

Date

May 8, 2019

Name:

Ryo MIZOJIRI

SIGNATURE

Ryo Mizojiri

Date

May 8, 2019

Atty. Dkt. No.

**NAME AND SIGNATURE OF INVENTOR**

Name: Kouichi IWANAGA      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Satoshi YAMAMOTO      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Note: *Prima facie* evidence of execution may optionally be obtained by execution before a U.S. Consul or before a local officer authorized to administer oaths whose authority is proved by a certificate from a U.S. Consul.

### ASSIGNMENT

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, each undersigned inventor (hereinafter referred to singly and collectively as "ASSIGNOR") has sold, assigned, and transferred, and by these presents hereby sells, assigns, and transfers, unto

TAKEDA PHARMACEUTICAL COMPANY LIMITED  
1-1 Doshomachi 4-chome  
Chuo-ku, Osaka-shi, Osaka 541-0045 Japan

(hereinafter referred to as "ASSIGNEE") its successors and assigns, the full and exclusive right, title and interest for the United States, its territories and possessions in and to this invention relating to

### HETEROCYCLIC COMPOUND AND USE THEREOF

as set forth in this United States Patent Application

Check  
one

☐ executed concurrently herewith  
☐ executed on \_\_\_\_\_  
☒ Serial No. 16/366,710 Filed March 27, 2019  
and

as well as in and to (a) all improvements and modifications of the above-identified invention or inventions, (b) the above-identified application and all other applications for Letters Patent of the United States for above-identified invention or inventions and all improvements and modifications thereof, (c) all Letters Patent which may issue from said applications in the United States, (d) all divisions, continuations, reissues, and extensions of said applications and Letters Patent, and (e) the right to claim for any of said applications the full benefits and priority rights under the Patent Cooperation Treaty, the Paris Convention and any other international agreement; such right, title, and interest to be held and enjoyed by ASSIGNEE, its successors and assigns, to the full end of the term or terms for which any and all such Letters Patent may be granted as fully and entirely as would have been held and enjoyed by ASSIGNOR had this Assignment not been made.

ASSIGNOR HEREBY AUTHORIZES AND REQUESTS the Commissioner of Patents and Trademarks to issue said Letters Patent to ASSIGNEE as assignee of the entire interest, for the sole use and benefit of ASSIGNEE, its successors and assigns.

ASSIGNOR HEREBY AGREES (a) to communicate to ASSIGNEE, its successors and assigns, or their representative or agents, all facts and information known or available to ASSIGNOR respecting said invention or inventions, improvements, and modifications including evidence for interference, reexamination, reissue, opposition, revocation, extension, or infringement purposes or other legal, judicial, or administrative proceedings, whenever requested by ASSIGNEE; (b) to testify in person or by affidavit as required by ASSIGNEE, its successors and assigns, in any such proceeding in the United States; (c) to execute and deliver, upon request by ASSIGNEE, all lawful papers including, but not limited to, original, divisional, continuation, and reissue applications, renewals, assignments, powers of attorney, oaths, affidavits, and declarations, depositions; and (d) to provide all reasonable assistance to ASSIGNEE, its successors and assigns, in obtaining and enforcing proper title in and protection for said invention or

inventions, improvements, and modifications under the intellectual property laws of the United States and countries foreign thereto.

ASSIGNOR HEREBY REPRESENTS AND WARRANTS that ASSIGNOR has the full and unencumbered right to sell, assign, and transfer the interests sold, assigned, and transferred herein, and that ASSIGNOR has not executed and will not execute any document or instrument in conflict herewith.

ASSIGNOR HEREBY GRANTS to the law firm of **Foley & Lardner LLP** the power and authority to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

ASSIGNOR UNDERSTANDS AND AGREES that the attorneys and agents of the law firm of **Foley & Lardner LLP** do not personally represent ASSIGNOR OR ASSIGNOR's legal interests, but instead represent the interests of ASSIGNEE; since said attorneys and agents cannot provide legal advice to ASSIGNOR with respect to this Assignment, ASSIGNOR acknowledges its right to seek its own independent legal counsel.

**NAME AND SIGNATURE OF INVENTOR**

Name: Yuya OGURO                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Shigemitsu MATSUMOTO      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Takeshi WAKABAYASHI      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Norihito TOKUNAGA              SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Taku KAMEI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Mitsuhiro ITO SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Satoshi MIKAMI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Masaki SETO SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Shinji MORIMOTO SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Shinji NAKAMURA SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Sachie TAKASHIMA SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Masataka MURAKAMI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Masaki DAINI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Makoto KAMATA SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Minoru NAKAMURA SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Yasufumi WADA SIGNATURE Yasufumi Wada Date 04/18/2019

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Hiroyuki KAKEI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Kazuaki TAKAMI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Taisuke TAWARAISHI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Jumpei AIDA SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Atty. Dkt. No.

**NAME AND SIGNATURE OF INVENTOR**

Name: Kouichi IWANAGA      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Satoshi YAMAMOTO      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

---

Note: *Prima facie* evidence of execution may optionally be obtained by execution before a U.S. Consul or before a local officer authorized to administer oaths whose authority is proved by a certificate from a U.S. Consul.

---

### ASSIGNMENT

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, each undersigned inventor (hereinafter referred to singly and collectively as "ASSIGNOR") has sold, assigned, and transferred, and by these presents hereby sells, assigns, and transfers, unto

TAKEDA PHARMACEUTICAL COMPANY LIMITED  
1-1 Doshomachi 4-chome  
Chuo-ku, Osaka-shi, Osaka 541-0045 Japan

(hereinafter referred to as "ASSIGNEE") its successors and assigns, the full and exclusive right, title and interest for the United States, its territories and possessions in and to this invention relating to

### HETEROCYCLIC COMPOUND AND USE THEREOF

as set forth in this United States Patent Application

Check  
one

☐ executed concurrently herewith  
☐ executed on \_\_\_\_\_  
☒ Serial No. 16/366,710 Filed March 27, 2019  
and

as well as in and to (a) all improvements and modifications of the above-identified invention or inventions, (b) the above-identified application and all other applications for Letters Patent of the United States for above-identified invention or inventions and all improvements and modifications thereof, (c) all Letters Patent which may issue from said applications in the United States, (d) all divisions, continuations, reissues, and extensions of said applications and Letters Patent, and (e) the right to claim for any of said applications the full benefits and priority rights under the Patent Cooperation Treaty, the Paris Convention and any other international agreement; such right, title, and interest to be held and enjoyed by ASSIGNEE, its successors and assigns, to the full end of the term or terms for which any and all such Letters Patent may be granted as fully and entirely as would have been held and enjoyed by ASSIGNOR had this Assignment not been made.

ASSIGNOR HEREBY AUTHORIZES AND REQUESTS the Commissioner of Patents and Trademarks to issue said Letters Patent to ASSIGNEE as assignee of the entire interest, for the sole use and benefit of ASSIGNEE, its successors and assigns.

ASSIGNOR HEREBY AGREES (a) to communicate to ASSIGNEE, its successors and assigns, or their representative or agents, all facts and information known or available to ASSIGNOR respecting said invention or inventions, improvements, and modifications including evidence for interference, reexamination, reissue, opposition, revocation, extension, or infringement purposes or other legal, judicial, or administrative proceedings, whenever requested by ASSIGNEE; (b) to testify in person or by affidavit as required by ASSIGNEE, its successors and assigns, in any such proceeding in the United States; (c) to execute and deliver, upon request by ASSIGNEE, all lawful papers including, but not limited to, original, divisional, continuation, and reissue applications, renewals, assignments, powers of attorney, oaths, affidavits, and declarations, depositions; and (d) to provide all reasonable assistance to ASSIGNEE, its successors and assigns, in obtaining and enforcing proper title in and protection for said invention or

inventions, improvements, and modifications under the intellectual property laws of the United States and countries foreign thereto.

ASSIGNOR HEREBY REPRESENTS AND WARRANTS that ASSIGNOR has the full and unencumbered right to sell, assign, and transfer the interests sold, assigned, and transferred herein, and that ASSIGNOR has not executed and will not execute any document or instrument in conflict herewith.

ASSIGNOR HEREBY GRANTS to the law firm of **Foley & Lardner LLP** the power and authority to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

ASSIGNOR UNDERSTANDS AND AGREES that the attorneys and agents of the law firm of **Foley & Lardner LLP** do not personally represent ASSIGNOR OR ASSIGNOR's legal interests, but instead represent the interests of ASSIGNEE; since said attorneys and agents cannot provide legal advice to ASSIGNOR with respect to this Assignment, ASSIGNOR acknowledges its right to seek its own independent legal counsel.

**NAME AND SIGNATURE OF INVENTOR**

Name: Yuya OGURO                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Shigemitsu MATSUMOTO      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Takeshi WAKABAYASHI      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Norihito TOKUNAGA              SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Taku KAMEI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Mitsuhiro ITO SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Satoshi MIKAMI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Masaki SETO SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Shinji MORIMOTO      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Shinji NAKAMURA      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Sachie TAKASHIMA      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Masataka MURAKAMI      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Masaki DAINI                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Makoto KAMATA                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Minoru NAKAMURA                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Yasufumi WADA                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:                                      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Hiroyuki KAKEI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Kazuaki TAKAMI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Taisuke TAWARAISHI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Jumpei AIDA SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Atty. Dkt. No.

**NAME AND SIGNATURE OF INVENTOR**

Name: Kouichi IWANAGA

SIGNATURE

*Kouichi Iwanaga*

Date

*Apr. 16. 2019*

**NAME AND SIGNATURE OF WITNESSES**

Name:

SIGNATURE

Date

Name:

SIGNATURE

Date

**NAME AND SIGNATURE OF INVENTOR**

Name: Satoshi YAMAMOTO

SIGNATURE

Date

**NAME AND SIGNATURE OF WITNESSES**

Name:

SIGNATURE

Date

Name:

SIGNATURE

Date

Note: *Prima facie* evidence of execution may optionally be obtained by execution before a U.S. Consul or before a local officer authorized to administer oaths whose authority is proved by a certificate from a U.S. Consul.

## ASSIGNMENT

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, each undersigned inventor (hereinafter referred to singly and collectively as "ASSIGNOR") has sold, assigned, and transferred, and by these presents hereby sells, assigns, and transfers, unto

TAKEDA PHARMACEUTICAL COMPANY LIMITED  
1-1 Doshomachi 4-chome  
Chuo-ku, Osaka-shi, Osaka 541-0045 Japan

(hereinafter referred to as "ASSIGNEE") its successors and assigns, the full and exclusive right, title and interest for the United States, its territories and possessions in and to this invention relating to

### HETEROCYCLIC COMPOUND AND USE THEREOF

as set forth in this United States Patent Application

Check  
one

☐ executed concurrently herewith  
☐ executed on \_\_\_\_\_  
☒ Serial No. 16/366,710 Filed March 27, 2019  
and

as well as in and to (a) all improvements and modifications of the above-identified invention or inventions, (b) the above-identified application and all other applications for Letters Patent of the United States for above-identified invention or inventions and all improvements and modifications thereof, (c) all Letters Patent which may issue from said applications in the United States, (d) all divisions, continuations, reissues, and extensions of said applications and Letters Patent, and (e) the right to claim for any of said applications the full benefits and priority rights under the Patent Cooperation Treaty, the Paris Convention and any other international agreement; such right, title, and interest to be held and enjoyed by ASSIGNEE, its successors and assigns, to the full end of the term or terms for which any and all such Letters Patent may be granted as fully and entirely as would have been held and enjoyed by ASSIGNOR had this Assignment not been made.

ASSIGNOR HEREBY AUTHORIZES AND REQUESTS the Commissioner of Patents and Trademarks to issue said Letters Patent to ASSIGNEE as assignee of the entire interest, for the sole use and benefit of ASSIGNEE, its successors and assigns.

ASSIGNOR HEREBY AGREES (a) to communicate to ASSIGNEE, its successors and assigns, or their representative or agents, all facts and information known or available to ASSIGNOR respecting said invention or inventions, improvements, and modifications including evidence for interference, reexamination, reissue, opposition, revocation, extension, or infringement purposes or other legal, judicial, or administrative proceedings, whenever requested by ASSIGNEE; (b) to testify in person or by affidavit as required by ASSIGNEE, its successors and assigns, in any such proceeding in the United States; (c) to execute and deliver, upon request by ASSIGNEE, all lawful papers including, but not limited to, original, divisional, continuation, and reissue applications, renewals, assignments, powers of attorney, oaths, affidavits, and declarations, depositions; and (d) to provide all reasonable assistance to ASSIGNEE, its successors and assigns, in obtaining and enforcing proper title in and protection for said invention or

inventions, improvements, and modifications under the intellectual property laws of the United States and countries foreign thereto.

ASSIGNOR HEREBY REPRESENTS AND WARRANTS that ASSIGNOR has the full and unencumbered right to sell, assign, and transfer the interests sold, assigned, and transferred herein, and that ASSIGNOR has not executed and will not execute any document or instrument in conflict herewith.

ASSIGNOR HEREBY GRANTS to the law firm of **Foley & Lardner LLP** the power and authority to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

ASSIGNOR UNDERSTANDS AND AGREES that the attorneys and agents of the law firm of **Foley & Lardner LLP** do not personally represent ASSIGNOR OR ASSIGNOR's legal interests, but instead represent the interests of ASSIGNEE; since said attorneys and agents cannot provide legal advice to ASSIGNOR with respect to this Assignment, ASSIGNOR acknowledges its right to seek its own independent legal counsel.

**NAME AND SIGNATURE OF INVENTOR**

Name: Yuya OGURO SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Shigemitsu MATSUMOTO SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Takeshi WAKABAYASHI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Norihito TOKUNAGA SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Taku KAMEI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Mitsuhiro ITO SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Satoshi MIKAMI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Masaki SETO SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Shinji MORIMOTO      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Shinji NAKAMURA      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Sachie TAKASHIMA      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Masataka MURAKAMI      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Masaki DAINI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Makoto KAMATA SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Minoru NAKAMURA SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Yasufumi WADA SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Hiroyuki KAKEI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Kazuaki TAKAMI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Taisuke TAWARAISHI SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Jumpei AIDA SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name: SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Atty. Dkt. No.

**NAME AND SIGNATURE OF INVENTOR**

Name: Kouichi IWANAGA      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

**NAME AND SIGNATURE OF INVENTOR**

Name: Satoshi YAMAMOTO      SIGNATURE Satoshi Yamamoto      Date May 16, 2019

**NAME AND SIGNATURE OF WITNESSES**

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Name:      SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Note: *Prima facie* evidence of execution may optionally be obtained by execution before a U.S. Consul or before a local officer authorized to administer oaths whose authority is proved by a certificate from a U.S. Consul.