## 503869411 06/14/2016

## PATENT ASSIGNMENT COVER SHEET

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| SUBMISSION TYPE:      | NEW ASSIGNMENT                             |
|-----------------------|--|
| NATURE OF CONVEYANCE: | EXECUTIVE ORDER 9424, CONFIRMATORY LICENSE |

### **CONVEYING PARTY DATA**

| Name                 | Execution Date |
|----------------------|----------------|
| BROAD INSTITUTE, INC | 01/22/2016     |

### **RECEIVING PARTY DATA**

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### **PROPERTY NUMBERS Total: 1**

| Property Type       | Number   |
|---------------------|----------|
| Application Number: | 14972523 |

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PATENT 503869411 REEL: 038984 FRAME: 0660

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|---|
| Invention Title: Optimized CRISPR-Cas Double Nickase Systems, Methods and Compositions for  |
| Sequence Manipulation   |
| Inventor(s): Feng Zhang, Patrick Hsu, Chie-Yu Lin, Fèi Ran  |
| U.S. Filing/Issue Date: 12/17/2015  |
| Patent or Application Serial No.: 14/972,523  |
| Grant/Contract Number(s): MH1007∜6  |
| Foreign Applications filed/intended in (countries):   |
| The invention identified above is a Subject Invention under <b>35 U.S.C. 200, et seq.</b> , and the Standard Patent Rights clause at <b>37 CFR 401.14, FAR 52.227-11</b> or <b>FAR 52.227-12</b> (if applicable) which are included among the terms of the above identified grant or contract award from the United States Government. This document is confirmatory of:  |
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| Signed this 22nd day of January , 20 16 .   |
| By Liisa Nogelo William Nogelo  |
| (Institutional Business Official) (Signature)   |
| Title General Counsel   |
| For BROAD INSTITUTE, INC.   |
| (Grantee/Contractor Organization)   |
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