

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

1. U.S. Patent No. 5,804,386, issued to Ju on September 8, 1998;
2. U.S. Patent No. 5,814,454, issued to Ju on September 29, 1998;
3. U.S. Patent No. 5,876,936, issued to Ju on March 2, 1999;
4. U.S. Patent No. 5,952,180, issued to Ju on September 14, 1999;
5. U.S. Patent No. 6,046,005, issued to Ju et al. on April 4, 2000;
6. U.S. Patent No. 6,627,748, issued to Ju et al. on September 30, 2003;

Columbia Exhibit 2045  
Illumina, Inc. v. The Trustees of Columbia  
University in the City of New York

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New York  
Serial No.: 15/380,284  
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Page 2 of 10 of Information Disclosure Statement

7. U.S. Patent No. 6,664,079, issued to Ju et al. on December 16, 2003;
8. U.S. Patent No. 7,074,597, issued to Ju on July 11, 2006;
9. U.S. Patent No. 7,345,159, issued to Ju on March 18, 2008;
10. U.S. Patent No. 7,622,279, issued to Ju on November 24, 2009;
11. U.S. Patent No. 7,635,578, issued to Ju et al. on December 22, 2009;
12. U.S. Patent No. 7,713,698, issued to Ju et al. on May 11, 2010;
13. U.S. Patent No. 7,790,869, issued to Ju et al. on September 7, 2010;
14. U.S. Patent No. 7,883,869, issued to Ju et al. on February 8, 2011;
15. U.S. Patent No. 7,982,029, issued to Ju et al. on July 19, 2011;
16. U.S. Patent No. 8,088,575, issued to Ju et al. on January 3, 2012;
17. U.S. Patent No. 8,298,792, issued to Ju et al. on October 30, 2012;
18. U.S. Patent No. 8,796,432, issued to Ju et al. on August 5, 2014;

Applicant : The Trustees of Columbia University in the City of  
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Page 3 of 10 of Information Disclosure Statement

19. U.S. Patent No. 8,889,348, issued to Ju on November 18, 2014;
20. U.S. Patent No. 9,115,163, issued to Ju et al. on August 25, 2015;
21. U.S. Patent No. 9,133,511 , issued to Ju et al. on September 15, 2015;
22. U.S. Patent No. 9,159,610, issued to Ju et al. on October 27, 2015;
23. U.S. Patent No. 9,175,342, issued to Ju et al. on November 3, 2015;
24. U.S. Patent No. 9,255,292, issued to Ju et al. February 9, 2016;
25. U.S. Patent No. 9,297,042 issued to Ju et al. on March 29, 2016;
26. U.S. Patent Application Publication No. 2003/0027140, Ju et al., published February 6, 2003;
27. U.S. Patent Application Publication No. 2005/0032081, Ju et al., published February 10, 2005;
28. U.S. Patent Application Publication No. 2006/0057565, Ju et al., published March 16, 2006;
29. U.S. Patent Application Publication No. 2006/0252038 A1, Ju et al., published November 9, 2006;
30. U.S. Patent Application Publication No. 2009/0240030 A1, Ju et al., published September 24, 2009;

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New York  
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31. U.S. Patent Application Publication No. 2011/0014611 A1, Ju et al., published January 20, 2011;
32. U.S. Patent Application Publication No. US 2012/0142006 A1, Ju et al., published June 7, 2012;
33. U.S. Patent Application Publication No. US 2013/0264207 A1, Ju et al., published October 10, 2013;
34. U.S. Patent Application Publication No. 2014/0315191 A1, Ju et al., published October 23, 2014;
35. U.S. Patent Application Publication No. 2015/0037788 A1, Ju, published February 5, 2015;
36. U.S. Patent Application Publication No. 2015/0080232, Ju et al., published March 19, 2015;
37. U.S. Patent Application Publication No. US 2015/0111759 A1, published April 23, 2015, Ju et al.;
38. U.S. Patent Application Publication No. US 2015/0119259 A1, published April 30, 2015, Ju et al.;
39. U.S. Patent Application Publication No. U.S. 2015/0197800, Ju et al, published July 16, 2015;
40. U.S. Application Publication No. US 2015/0368710, published December 24, 2015, Fuller et al.;
41. U.S. Application Publication No. US 2016/0024570, first published on January 28, 2016;
42. U.S. Patent Application Publication No. 2016/0024574, Ju et al, published January 28, 2016;



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43. U.S. Application Publication No. US 2016/0,041,179,  
published February 11, 2016, Ju et al.;
44. U.S. Patent Application Publication No. 2016/0090621,  
published March 31, 2016;
45. Canadian Patent No. CA 2,425,112, The Trustees of Columbia  
University in the City of New York, granted September 27,  
2011;
46. German Utility Model Registration No. DE 20122767.3 U1, The  
Trustees of Columbia University in the City of New York,  
granted August 9, 2008;
47. German Patent No. DE 112007002932.3, The Trustees of  
Columbia University in the City of New York, granted August  
6, 2015 (**Exhibit 1**);
48. European Patent No. EP 1337541 B1, The Trustees of Columbia  
University in the City of New York, granted March 7, 2007;
49. European Patent Application No. EP 1790736 A2, The Trustees  
of Columbia University in the City of New York, published  
May 30, 2007;
50. European Patent No. EP 2209911 B1, The Trustees of Columbia  
University in the City of New York, granted October 16,  
2013;
51. United Kingdom Patent No. GB2446083, The Trustees of  
Columbia University in the City of New York, granted March  
2, 2011;

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Page 6 of 10 of Information Disclosure Statement

52. United Kingdom Patent No. GB2446084, The Trustees of Columbia University in the City of New York, granted March 2, 2011;
53. United Kingdom Patent No. GB2457402, The Trustees of Columbia University in the City of New York, granted September 20, 2011;
54. PCT International Application Publication No. WO 2002/22883 A1, The Trustees of Columbia University in the City of New York, published March 21, 2002;
55. PCT International Application Publication No. WO 2002/29003, The Trustees of Columbia University in the City of New York, published April 11, 2002;
56. PCT International Application Publication No. WO 2002/079519 A1, The Trustees of Columbia University in the City of New York, published October 10, 2002;
57. PCT International Application Publication No. WO 2004/55160, The Trustees of Columbia University in the City of New York, published July 1, 2004;
58. PCT International Application Publication No. WO 2005/084367, The Trustees of Columbia University in the City of New York, published September 15, 2005;
59. PCT International Application Publication No. WO 2007/002204, The Trustees of Columbia University in the City of New York, published January 4, 2007;

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Filed : December 15, 2016  
Page 7 of 10 of Information Disclosure Statement

60. PCT International Application Publication No. WO  
2008/069973, The Trustees of Columbia University in the City  
of New York, published June 12, 2008;
61. PCT International Application Publication No. WO  
2012/083249, The Trustees of Columbia University in the City  
of New York, published June 21, 2012;
62. PCT International Application Publication No. WO  
2012/162429, The Trustees of Columbia University in the City  
of New York, published November 29, 2012 (**Exhibit 2**);
63. PCT International Application Publication No. WO  
2013/154999, The Trustees of Columbia University in the City  
of New York, published October 17, 2013;
64. PCT International Application Publication No. WO  
2013/191793, The Trustees of Columbia University in the City  
of New York, published December 27, 2013;
65. PCT International Application Publication No. WO  
2014/144883, The Trustees of Columbia University in the City  
of New York, published September 18, 2014;
66. PCT International Application Publication No. WO  
2014/144898, The Trustees of Columbia University in the City  
of New York, published September 18, 2014;
67. PCT International Application Publication No. WO  
2015/123430, The Trustees of Columbia University in the City  
of New York, published August 20, 2015 (**Exhibit 3**);

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68. PCT International Application Publication No. WO  
2015/148402, The Trustees of Columbia University in the City  
of New York, published October 1, 2015 (**Exhibit 4**); and
69. PCT International Application Publication No. WO  
2015/179284, The Trustees of Columbia University in the City  
of New York, first published November 26, 2015 (**Exhibit 5**).

In accordance with 37 C.F.R. §1.98(a)(2)(ii), copies of U.S.  
Patents and U.S. Patent Application Publications need not be  
provided. Accordingly, copies of the documents listed above as  
items 1-44 are not submitted herewith.

The above-identified application claims benefit under 35 U.S.C.  
§120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now  
pending, which is a continuation of U.S. Serial No. 13/959,660,  
filed August 5, 2013, now U.S. Patent No. 9,133,511, issued  
September 15, 2015, which is a continuation of U.S. Serial No.  
13/672,437, filed November 8, 2012, now abandoned, which is a  
continuation of U.S. Serial No. 13/339,089, filed December 28,  
2011, now abandoned, which is a continuation of U.S. Serial No.  
12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575,  
issued January 3, 2012, which is a continuation of U.S. Serial  
No. 11/810,509, filed June 5, 2007, now U.S. Patent No.  
7,790,869, issued September 7, 2010, which is a continuation of  
U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S.  
Patent No. 7,345,159, issued March 18, 2008, which is a  
divisional of U.S. Serial No. 09/972,364, filed October 5, 2001,  
now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming  
the benefit of U.S. Provisional Application No. 60/300,894, filed  
June 26, 2001, and a continuation-in-part of U.S. Serial No.  
09/684,670, filed October 6, 2000, now abandoned.

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In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents listed above as items 45-46, 48-61, and 63-66 need not be provided because such copies have previously been submitted in Information Disclosure Statements, or cited by the U.S. Patent Office, in connection with one or more of U.S. Serial No. 14/670,748, U.S. Serial No. 13/959,660, U.S. Serial No. 13/672,437, U.S. Serial No. 13/339,089, U.S. Serial No. 12/804,284, U.S. Serial No. 11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No. 09/972,364.

Copies of the documents listed herein as items 47, 62, and 67-69 are attached hereto as **Exhibits 1-5** respectively.

This Information Disclosure Statement is being submitted before the mailing of the first Office Action on the merits. In accordance with 37 C.F.R. §1.97(b) no fee is required.

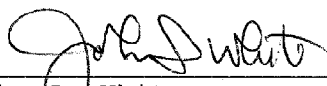
The Examiner is respectfully requested to make the above-listed references of record in the subject application by initialing and dating the attached Substitute PTO-1449 Forms, and returning copies of the initialed and dated PTO-1449 Forms to applicant's undersigned attorney.

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicant's undersigned attorney invites the Examiner to telephone him at the number provided below.

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Page 10 of 10 of Information Disclosure Statement

No fee is deemed necessary in connection with the filing of this  
Information Disclosure Statement. However, if any fee is  
required, authorization is hereby given to charge the amount of  
such fee to Deposit Account No. 03-3125.

Respectfully submitted,



John P. White  
Registration No. 28,678  
Attorney for Applicant  
Cooper & Dunham LLP  
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**Certificate of Transmission**

I hereby certify that this  
correspondence is being  
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Patent and Trademark Office on  
December 19, 2016.



John P. White  
Reg. No. 28,678

**Form PTO-1449 (Substitute) U.S. Department of Commerce  
Patent and Trademark Office**

<b>Application Number</b>	15/380,284
<b>Filing Date</b>	December 15, 2016
<b>First Named Inventor</b>	Jingyue Ju
<b>Art Unit</b>	1637
<b>Examiner Name</b>	Jezia Riley
<b>Attorney Docket No.</b>	62239-BZA9/JFW/AC

**INFORMATION DISCLOSURE STATEMENT**

(Use several sheets if necessary)

**U.S. PATENT DOCUMENTS**

Examiner Initials <sup>a</sup>	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	1	5,804,386	09-08-1998	Ju
	2	5,814,454	09-29-1998	Ju
	3	5,876,936	03-02-1999	Ju
	4	5,952,180	09-14-1999	Ju
	5	6,046,005	04-04-2000	Ju et al.
	6	6,627,748	09-30-2003	Ju et al.
	7	6,664,079	12-16-2003	Ju et al.
	8	7,074,597	07-11-2006	Ju
	9	7,345,159	03-18-2008	Ju et al.
	10	7,622,279	11-24-2009	Ju
	11	7,635,578	12-22-2009	Ju et al.
	12	7,713,698	05-11-2010	Ju et al.
	13	7,790,869	09-07-2010	Ju et al.
	14	7,883,869	02-08-2011	Ju et al.
	15	7,982,029	07-19-2011	Ju et al.
	16	8,088,575	01-03-2012	Ju et al.
	17	8,298,792	10-30-2012	Ju et al.
	18	8,796,432	08-05-2014	Ju et al.
	19	8,889,348	11-18-2014	Ju
	20	9,115,163	08-25-2015	Ju et al.
	21	9,133,511	09-15-2015	Ju et al.
	22	9,159,610	10-13-2015	Zhang et al.
	23	9,175,342	11-03-2015	Ju et al.
	24	9,255,292	02-09-2016	Ju et al.
	25	9,297,042	03-29-2016	Ju et al.
	26	2003/0027140	02-06-2003	Ju et al.

**EXAMINER  
SIGNATURE**
**DATE CONSIDERED**

<sup>a</sup>EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

Applicant: The Trustees of Columbia  
University in the City of New York  
Serial No.: 15/380,284  
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IDS Exhibit A

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> (Use several sheets if necessary)	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### U.S. PATENT DOCUMENTS

Examiner Initials <sup>*</sup>	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	27	2005/0032081	02-10-2005	Ju et al.
	28	2006/0057565	03-16-2006	Ju et al.
	29	2006/0252038	11-09-2006	Ju
	30	2009/0240030	09-24-2009	Ju et al.
	31	2011/0014611	01-20-2011	Ju et al.
	32	2012/0142006	06-07-2012	Ju et al.
	33	2013/0264207	10-10-2013	Ju et al.
	34	2014/0315191	10-23-2014	Ju et al.
	35	2015/0037788	02-05-2015	Ju
	36	2015/0080232	03-19-2015	Ju et al.
	37	2015/0111759	04-23-2015	Ju et al.
	38	2015/0119259	04-30-2015	Ju et al.
	39	2015/0197800	07-16-2015	Ju et al.
	40	2015/0368710	12-24-2015	Fuller et al.
	41	2016/0024570	01-28-2016	Ju et al.
	42	2016/0024574	01-28-2016	Ju et al.
	43	2016/0041179	02-11-2016	Ju et al.
	44	2016/0090621	03-31-2016	Ju et al.

### FOREIGN PATENT DOCUMENTS

Examiner Initials <sup>*</sup>	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T <sup>6</sup>
	45	CA 2425112	04-11-2002	The Trustees of Columbia University in the City of New York	
	46	DE 20122767	08-09-2007	The Trustees of Columbia University in the City of New York	
	47	DE 112007002932.3	08-06-2015	The Trustees of Columbia University in the City of New York	
	48	EP 1337541 B1	03-07-2007	The Trustees of Columbia University in the City of New York	

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**DATE CONSIDERED**

<sup>\*</sup>EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.



<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> (Use several sheets if necessary)	<b>Application Number</b>	15/380,284
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	<b>First Named Inventor</b>	Jingyue Ju
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	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### FOREIGN PATENT DOCUMENTS

Examiner Initials <sup>6</sup>	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>2</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T <sup>6</sup>
	49	CA 2425112	04-11-2002	The Trustees of Columbia University in the City of New York	
	50	EP 2209911 B1	10-16-2013	The Trustees of Columbia University in the City of New York	
	51	GB 2446083	03-02-2011	The Trustees of Columbia University in the City of New York	
	52	GB 2446084	03-02-2011	The Trustees of Columbia University in the City of New York	
	53	GB 2457402	09-20-2011	The Trustees of Columbia University in the City of New York	
	54	WO 2002/22883	03-21-2002	The Trustees of Columbia University in the City of New York	
	55	WO 2002/29003	04-11-2002	The Trustees of Columbia University in the City of New York	
	56	WO 2002/079519	10-10-2002	The Trustees of Columbia University in the City of New York	
	57	WO 2004/055160	07-01-2004	The Trustees of Columbia University in the City of New York	
	58	WO 2005/084367	09-15-2005	The Trustees of Columbia University in the City of New York	
	59	WO 2007/002204	01-04-2007	The Trustees of Columbia University in the City of New York	
	60	WO 2008/069973	06-12-2008	The Trustees of Columbia University in the City of New York	
	61	WO 2012/083249	06-21-2012	The Trustees of Columbia University in the City of New York	
	62	WO 2012/162429	11-29-2012	The Trustees of Columbia University in the City of New York	
	63	WO 2013/154999	10-17-2013	The Trustees of Columbia University in the City of New York	
	64	WO 2013/191793	12-27-2013	The Trustees of Columbia University in the City of New York	
	65	WO 2014/144883	09-18-2014	The Trustees of Columbia University in the City of New York	
	66	WO 2014/144898	09-18-2014	The Trustees of Columbia University in the City of New York	
	67	WO 2015/123430	08-20-2015	The Trustees of Columbia University in the City of New York	
	68	WO 2015/148402	10-01-2015	The Trustees of Columbia University in the City of New York	
	69	WO 2015/179284	11-26-2015	The Trustees of Columbia University in the City of New York	

 EXAMINER /LAYLA D BERRY/  
SIGNATURE

DATE CONSIDERED 02/07/2017

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

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New York, New York 10112  
December 19, 2016

**By EFS**

Commissioner for Patents  
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**FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

1. Office Action issued September 21, 2007 in connection with U.S. Serial No. 10/380,256;
2. Office Action issued October 25, 2002 in connection with U.S. Serial No. 09/972,364;
3. Office Action issued March 14, 2003 in connection with U.S. Serial No. 09/972,364;
4. Office Action issued December 20, 2006 in connection with U.S. Serial No. 10/702,203;
5. Amendment filed May 21, 2007 in response to Office Action issued December 20, 2006 in connection with U.S. Serial No. 10/702,203;

Applicant : The Trustees of Columbia University in the City of  
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Page 2 of 11 of First Supplemental Information Disclosure  
Statement

6. Notice of Allowance issued September 6, 2007 in connection with U.S. Serial No. 10/702,203 (**Exhibit 1**);
7. Office Action issued June 24, 2008 in connection with U.S. Serial No. 11/894,690;
8. Amendment filed October 16, 2008 in response to Office Action issued June 24, 2008 in connection with U.S. Serial No. 11/894,690;
9. Supplemental Amendment filed January 16, 2009 in connection with U.S. Serial No. 11/894,690;
10. Notice of Allowance issued February 24, 2009 in connection with U.S. Serial No. 11/894,690;
11. Office Action issued June 5, 2009 in connection with U.S. Serial No. 11/894,690;
12. November 5, 2009 Amendment in response to Office Action issued June 5, 2009 in connection with U.S. Serial No. 11/894,690;
13. Office Action issued September 3, 2008 in connection with U.S. Serial No. 11/894,808;
14. December 19, 2008 Amendment in response to Office Action issued September 3, 2008 in connection with U.S. Serial No. 11/894,808;
15. Notice of Allowance issued March 23, 2009 in connection with U.S. Serial No. 11/894,808;

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New York  
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16. Amendment after Notice of Allowance filed June 23, 2009 in connection with U.S. Serial No. 11/894,808;
17. Office Action issued July 10, 2009 in connection with U.S. Serial No. 11/810,509;
18. January 11, 2010 Amendment in response to Office Action issued July 10, 2009 in connection with U.S. Serial No. 11/810,509;
19. January 26, 2010 Supplemental Amendment in connection with U.S. Serial No. 11/810,509;
20. Notice of Allowance and Fee(s) Due issued April 2, 2010 in connection with U.S. Serial No. 11/810,509;
21. Office Action issued October 28, 2010 in connection with U.S. Serial No. 12/804,284;
22. Office Action issued February 4, 2011 in connection with U.S. Serial No. 12/804,284;
23. August 4, 2011 Amendment in response to Office Action issued February 4, 2011 in connection with U.S. Serial No. 12/804,284;
24. Notice of Allowance issued September 1, 2011 in connection with U.S. Serial No. 12/804,284;
25. Office Action issued May 8, 2012 in connection with U.S. Serial No. 13/339,089;
26. Notice of Abandonment issued November 14, 2012 in connection with U.S. Serial No. 13/339,089;

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Statement

27. Notice of Abandonment issued September 13, 2013 in connection with U.S. Serial No. 13/672,437;
28. Office Action issued December 1, 2014 in connection with U.S. Serial No. 13/959,660;
29. Amendment filed February 27, 2015 in connection with U.S. Serial No. 13/959,660;
30. Notice of Allowance issued May 3, 2015 in connection with U.S. Serial No. 13/959,660;
31. Official Action issued March 17, 2009 in connection with Canadian Patent Application No. CA 2425112 OA;
32. September 17, 2009 Response to Official Action issued March 17, 2009 in connection with Canadian Patent Application No. CA 2425112 OA;
33. Official Action issued March 16, 2010 in connection with Canadian Patent Application No. CA 2425112 OA;
34. September 16, 2010 Response to Official Action issued March 16, 2010 in connection with Canadian Patent Application No. CA 2425112 OA;
35. Partial European Search Report issued April 26, 2007 in connection with European Patent Application No. 07004522.4;
36. Extended European Search Report issued July 18, 2007 in connection with European Patent Application No. 07004522.4;
37. Official Action issued March 14, 2008 in connection with European Patent Application No. 07004522.4;

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38. September 24, 2008 Response to Official Action issued March 14, 2008 in connection with European Patent Application No. 07004522.4;
39. Communication Pursuant to Article 94(3) EPC issued April 30, 2009 in connection with counterpart European Patent Application No. 07004522.4;
40. November 10, 2009 Response to Communication Pursuant to Article 94(3) EPC issued April 30, 2009 in connection with counterpart European Patent Application No. 07004522.4;
41. Communication Pursuant to Article 94(3) EPC issued June 10, 2012 in connection with counterpart European Patent Application No. 07004522.4;
42. October 20, 2010 Response to Communication Pursuant to Article 94(3) EPC issued June 10, 2012 in connection with counterpart European Patent Application No. 07004522.4;
43. Communication Pursuant to Article 94(3) EPC issued April 1, 2011 in connection with counterpart European Patent Application No. 07004522.4;
44. October 11, 2011 Response to Communication Pursuant to Article 94(3) EPC issued April 1, 2011 in connection with counterpart European Patent Application No. 07004522.4;
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46. November 30, 2012 Response to Communication Pursuant to Article 94(3) EPC issued May 24, 2012 in connection with counterpart European Patent Application No. 07004522.4;
47. Communication Pursuant to Article 94(3) EPC issued June 12, 2013 in connection with counterpart European Patent Application No. 07004522.4;
48. December 31, 2013 Response to Communication Pursuant to Article 94(3) EPC issued June 12, 2013 in connection with counterpart European Patent Application No. 07004522.4;
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50. January 2, 2015 Written Submission in connection with counterpart European Patent Application No. 07004522.4;
51. January 15, 2015 Communication in connection with counterpart European Patent Application No. 07004522.4;
52. January 29, 2015 Written Submission in connection with counterpart European Patent Application No. 07004522.4;
53. February 5, 2015 Communication in connection with counterpart European Patent Application No. 07004522.4;
54. March 23, 2015 Decision of Refusal in connection with counterpart European Patent Application No. 07004522.4;
55. June 1, 2015 Notice of Appeal in connection with counterpart European Patent Application No. 07004522.4 (**Exhibit 2**);

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56. August 3, 2015 Statement of Grounds of Appeal in connection with counterpart European Patent Application No. 07004522.4 (**Exhibit 3**);
57. International Search Report issued May 13, 2002 in connection with PCT/US01/31243;
58. European Search Report issued February 27, 2004 in connection with European Patent Application No. 01977533.7;
59. Supplementary European Search Report issued February 16, 2004 in connection with European Patent Application No. 01977533;
60. Communication Pursuant to Article 94(3) EPC issued March 30, 2005 in connection with European Patent Application No. 01977533.7;
61. October 10, 2005 Response to Communication Pursuant to Article 94(3) EPC issued March 30, 2005 in connection with European Patent Application No. 01977533.7;
62. Communication Pursuant to Article 94(3) EPC issued November 16, 2005 in connection with European Patent Application No. 01977533.7;
63. March 22, 2006 Response to Communication Pursuant to Article 94(3) EPC issued November 16, 2005 in connection with European Patent Application No. 01977533.7;
64. International Preliminary Examination Report issued on June 13, 2003 in connection with PCT/US01/31243;



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65. Official Action issued March 31, 2006 in connection with European Patent Application No. 01968905.8;
66. Official Action issued May 21, 2007 in connection with European Patent Application No. 01968905.8;
67. International Preliminary Examination Report issued on February 25, 2003 in connection with PCT/US01/28967;
68. Supplementary European Search Report issued June 7, 2005 in connection with European Patent Application No. 01968905;
69. International Search Report issued January 23, 2002 in connection with PCT/US01/28967;
70. European Search Report issued May 18, 2016 in connection with European Patent Application No. EP15195765.1, Ju et al. (Exhibit 4);
71. Notification of Transmittal of International Search Report and the Written Opinion of the International Searching Authority, or the Declaration issued September 9, 2008 in connection with International Application No. PCT/US06/24157;
72. Notification of Transmittal of International Search Report and Written Opinion, issued February 6, 2008 in connection with International Application No. PCT/06/042739;
73. Notification Concerning Transmittal of Copy of International Preliminary Report on Patentability issued May 15, 2008 in connection with International Application No. PCT/US2006/042698;

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New York  
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74. Notification of Transmittal of the International Search Report and Written Opinion, issued August 12, 2008 in connection with International Application No. PCT/US07/24646;
75. Office Action issued November 14, 2007 in connection with U.S. Serial No. 10/735,081;
76. Office Action issued July 8, 2008 in connection with U.S. Serial No. 10/591,520; and
77. Restriction Requirement issued October 1, 2007 in connection with U.S. Serial No. 10/521,206.

The above-identified application claims benefit under 35 U.S.C. §120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now pending, which is a continuation of U.S. Serial No. 13/959,660, filed August 5, 2013, now U.S. Patent No. 9,133,511, issued September 15, 2015, which is a continuation of U.S. Serial No. 13/672,437, filed November 8, 2012, now abandoned, which is a continuation of U.S. Serial No. 13/339,089, filed December 28, 2011, now abandoned, which is a continuation of U.S. Serial No. 12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575, issued January 3, 2012, which is a continuation of U.S. Serial No. 11/810,509, filed June 5, 2007, now U.S. Patent No. 7,790,869, issued September 7, 2010, which is a continuation of U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S. Patent No. 7,345,159, issued March 18, 2008, which is a divisional of U.S. Serial No. 09/972,364, filed October 5, 2001, now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming the benefit of U.S. Provisional Application No. 60/300,894, filed

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June 26, 2001, and a continuation-in-part of U.S. Serial No.  
09/684,670, filed October 6, 2000, now abandoned.

In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents  
listed above, as items 1-5, 7-54, 57-69, and 71-77 need not be  
provided because such copies have previously been submitted in  
Information Disclosure Statements, or cited by the U.S. Patent  
Office, in connection with one or more of U.S. Serial No.  
14/670,748, U.S. Serial No. 13/959,660, U.S. Serial No.  
13/672,437, U.S. Serial No. 13/339,089, U.S. Serial No.  
12/804,284, U.S. Serial No. 11/810,509, U.S. Serial No.  
10/702,203, or U.S. Serial No. 09/972,364.

Copies of the documents listed herein as items 6, 55, 56, and 70  
are attached hereto as **Exhibits 1-4** respectively.

This Information Disclosure Statement is being submitted before  
the mailing of the first Office Action on the merits. In  
accordance with 37 C.F.R. §1.97(b) no fee is required.

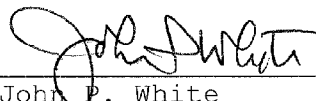
The Examiner is respectfully requested to make the above-listed  
references of record in the subject application by initialing and  
dating the attached Substitute PTO-1449 Forms, and returning  
copies of the initialed and dated PTO-1449 Forms to applicant's  
undersigned attorney.

If a telephone interview would be of assistance in advancing  
prosecution of the subject application, applicant's undersigned  
attorney invites the Examiner to telephone him at the number  
provided below.

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Statement

No fee is deemed necessary in connection with the filing of this  
Information Disclosure Statement. However, if any fee is  
required, authorization is hereby given to charge the amount of  
such fee to Deposit Account No. 03-3125.

Respectfully submitted,



John P. White  
Registration No. 28,678  
Attorney for Applicant  
Cooper & Dunham LLP  
30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
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**Certificate of Transmission**

I hereby certify that this  
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Patent and Trademark Office on  
December 19, 2016.



John P. White  
Reg. No. 28,678

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials <sup>4</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	1	Office Action issued September 21, 2007 in connection with U.S. Serial No. 10/380,256	
	2	Office Action issued October 25, 2002 in connection with U.S. Serial No. 09/972,364	
	3	Office Action issued March 14, 2003 in connection with U.S. Serial No. 09/972,364	
	4	Office Action issued December 20, 2006 in connection with U.S. Serial No. 10/702,203	
	5	Amendment filed May 21, 2007 in response to Office Action issued December 20, 2006 in connection with U.S. Serial No. 10/702,203	
	6	Notice of Allowance issued September 6, 2007 in connection with U.S. Serial No. 10/702,203	
	7	Office Action issued June 24, 2008 in connection with U.S. Serial No. 11/894,690	
	8	Amendment filed October 16, 2008 in response to Office Action issued June 24, 2008 in connection with U.S. Serial No. 11/894,690	
	9	Supplemental Amendment filed January 16, 2009 in connection with U.S. Serial No. 11/894,690	
	10	Notice of Allowance issued February 24, 2009 in connection with U.S. Serial No. 11/894,690	
	11	Office Action issued June 5, 2009 in connection with U.S. Serial No. 11/894,690	
	12	November 5, 2009 Amendment in response to Office Action issued June 5, 2009 in connection with U.S. Serial No. 11/894,690	
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	14	December 19, 2008 Amendment in response to Office Action issued September 3, 2008 in connection with U.S. Serial No. 11/894,808	

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SIGNATURE**
**DATE CONSIDERED**

**\*EXAMINER:** Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible.

<sup>6</sup>Applicant is to place a check mark here if English Language Translation is attached.

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Serial No.: 15/380,284

Filed: December 15, 2016

First SIDS Exhibit A  
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

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	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	27	Office Action issued December 1, 2014 in connection with U.S. Serial No. 13/959,660	
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	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	62	Communication Pursuant to Article 94(3) EPC issued November 16, 2005 in connection with European Patent Application No. 01977533.7	
	63	March 22, 2006 Response to Communication Pursuant to Article 94(3) EPC issued November 16, 2005 in connection with European Patent Application No. 01977533.7	
	64	International Preliminary Examination Report issued on June 13, 2003 in connection with PCT/US01/31243	
	65	Official Action issued March 31, 2006 in connection with European Patent Application No. 01968905.8	
	66	Official Action issued May 21, 2007 in connection with European Patent Application No. 01968905.8	
	67	International Preliminary Examination Report issued on February 25, 2003 in connection with PCT/US01/28967	
	68	Supplementary European Search Report issued June 7, 2005 in connection with European Patent Application No. 01968905	

**EXAMINER  
SIGNATURE**
**DATE CONSIDERED**

<sup>a</sup>EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>		<b>Application Number</b>	15/380,284
		<b>Filing Date</b>	December 15, 2016
		<b>First Named Inventor</b>	Jingyue Ju
		<b>Art Unit</b>	1637
		<b>Examiner Name</b>	Jezia Riley
		<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC
<b>INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)</b>			
<b>NON PATENT LITERATURE DOCUMENTS</b>			
<b>Examiner Initials<sup>6</sup></b>	<b>Cite No.<sup>1</sup></b>	<b>Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.</b>	<b>T<sup>2</sup></b>
	69	International Search Report issued January 23, 2002 in connection with PCT/US01/28967	
	70	European Search Report issued May 18, 2016 in connection with European Patent Application No. EP15195765.1, Ju et al.	
	71	Notification of Transmittal of International Search Report and the Written Opinion of the International Searching Authority, or the Declaration issued September 9, 2008 in connection with International Application No. PCT/US06/24157	
	72	Notification of Transmittal of International Search Report and Written Opinion, issued February 6, 2008 in connection with International Application No. PCT/06/042739	
	73	Notification Concerning Transmittal of Copy of International Preliminary Report on Patentability issued May 15, 2008 in connection with International Application No. PCT/US2006/042698	
	74	Notification of Transmittal of the International Search Report and Written Opinion, issued August 12, 2008 in connection with International Application No. PCT/US07/24646	
	75	Office Action issued November 14, 2007 in connection with U.S. Serial No. 10/735,081	
	76	Office Action issued July 8, 2008 in connection with U.S. Serial No. 10/591,520	
	77	Restriction Requirement issued October 1, 2007 in connection with U.S. Serial No. 10/521,206	
<b>EXAMINER SIGNATURE</b>		<b>DATE CONSIDERED</b>	
<p><b>*EXAMINER:</b> Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</p>			

/LAYLA D BERRY/ 02/07/2017

Page 30 of 233

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B./

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

SECOND SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

1. U.S. Patent No. 4,711,955, issued to Ward et al. on December 8, 1987;
2. U.S. Patent No. 4,772,691, issued to Herman on September 20, 1988;
3. U.S. Patent No. 4,824,775, issued to Dattagupta on April 25, 1989;
4. U.S. Patent No. 4,863,849, issued to Melamede on September 5, 1989;
5. U.S. Patent No. 5,043,272, issued to Hartley on August 27, 1991;
6. U.S. Patent No. 5,118,605, issued to Urdea on June 2, 1992;

Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 2 of 9 of Second Supplemental Information Disclosure  
Statement

7. U.S. Patent No. 5,174,962, issued to Brennan on December 29, 1992;
8. U.S. Patent No. 5,175,269, issued to Stavrianopoulos and Jannis on December 29, 1992;
9. U.S. Patent No. 5,302,509, issued to Cheeseman on April 12, 1994;
10. U.S. Patent No. 5,308,990, issued to Takahashi et al. on May 3, 1994;
11. U.S. Patent No. 5,328,824, issued to Ward et al. on July 12, 1994;
12. U.S. Patent No. 5,332,666, issued to Prober et al. on July 26, 1994;
13. U.S. Patent No. 5,436,143, issued to Hyman on July 25, 1995;
14. U.S. Patent No. 5,437,975, issued to McClelland et al. on August 1, 1995;
15. U.S. Patent No. 5,449,767, issued to Ward et al. on September 12, 1995;
16. U.S. Patent No. 5,476,928, issued to Ward et al. on December 19, 1995;
17. U.S. Patent No. 5,516,664, issued to Hyman on May 14, 1996;
18. U.S. Patent No. 5,534,424, issued to Uhlen et al. on July 9, 1996;

Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 3 of 9 of Second Supplemental Information Disclosure  
Statement

19. U.S. Patent No. 5,547,839, issued to Dower et al. to August 20, 1996;
20. U.S. Patent No. 5,547,859, issued to Goodman et al. on August 20, 1996;
21. U.S. Patent No. 5,556,748, to Douglas on issued September 17, 1996;
22. U.S. Patent No. 5,599,675 issued to Brenner on February 4, 1997;
23. U.S. Patent No. 5,602,000, issued to Hyman on February 11, 1997;
24. U.S. Patent No. 5,637,469, issued to Wilding et al. on June 10, 1997;
25. U.S. Patent No. 5,654,419, issued to Mathies on August 5, 1997;
26. U.S. Patent No. 5,658,736, issued to Wong on August 19, 1997;
27. U.S. Patent No. 5,709,999, issued to Shattuck et al. on January 20, 1998;
28. U.S. Patent No. 5,714,330, issued to Brenner et al. on February 3, 1998;
29. U.S. Patent No. 5,728,528, issued to Mathies on March 17, 1998;

Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 4 of 9 of Second Supplemental Information Disclosure  
Statement

30. U.S. Patent No. 5,763,594, issued to Hiatt et al. on June 9, 1998;
31. U.S. Patent No. 5,770,365, issued to Lane et al. on June 23, 1998;
32. U.S. Patent No. 5,770,367, issued to Southern et al. on June 23, 1998;
33. U.S. Patent No. 5,789,167, issued to Konrad on August 4, 1998;
34. U.S. Patent No. 5,798,210, issued to Canard et al. on August 25, 1998;
35. U.S. Patent No. 5,808,045, issued to Hiatt et al on September 15, 1998;
36. U.S. Patent No. 5,821,356, issued to Khan et al. on October 13, 1998;
37. U.S. Patent No. 5,834,203, issued to Katzir on November 10, 1998;
38. U.S. Patent No. 5,844,106, issued to Seela et al. on December 1, 1998;
39. U.S. Patent No. 5,849,542, issued to Reeve et al. on December 15, 1998;
40. U.S. Patent No. 5,853,992, issued to Glazer on December 29, 1998;

Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 5 of 9 of Second Supplemental Information Disclosure  
Statement

41. U.S. Patent No. 5,856,104, issued to Chee et al. on January 5, 1999;
42. U.S. Patent No. 5,869,255, issued to Mathies on February 9, 1999;
43. U.S. Patent No. 5,872,244, issued to Hiatt et al. on February 16, 1999;
44. U.S. Patent No. 5,885,775, issued to Haff et al. on March 23, 1999;
45. U.S. Patent No. 5,908,755, issued to Kumar et al. on June 1, 1999;
46. U.S. Patent No. 5,945,283, issued to Kwok on August 31, 1999;
47. U.S. Patent No. 5,962,228, issued to Brenner on October 5, 1999;
48. U.S. Patent No. 6,001,566, issued to Canard et al. on December 14, 1999;
49. U.S. Patent No. 6,001,611, issued to Will on December 14, 1999;
50. U.S. Patent No. 6,008,379, issued to Benson et al. on December 28, 1999;
51. U.S. Patent No. 6,028,190, issued to Mathies on February 22, 2000;

Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 6 of 9 of Second Supplemental Information Disclosure  
Statement

- 52. U.S. Patent No. 6,074,823, issued to Koster on June 13, 2000;
- 53. U.S. Patent No. 6,087,095, issued to Rosenthal et al. on July 11, 2000;
- 54. U.S. Patent No. 6,136,543, issued to Anazawa et al. on October 24, 2000;
- 55. U.S. Patent No. 6,175,107, issued to Juvinall on January 16, 2001;
- 56. U.S. Patent No. 6,197,557, issued to Markarov et al. on March 6, 2001;
- 57. U.S. Patent No. 6,207,831, issued to Auer et al. on March 27, 2001;
- 58. U.S. Patent No. 6,210,891, issued to Nyren et al. on April 3, 2001;
- 59. U.S. Patent No. 6,214,987, issued to Hiatt et al. on April 10, 2001;
- 60. U.S. Patent No. 6,218,118, issued to Sampson on April 17, 2001;
- 61. U.S. Patent No. 6,218,530, issued to Rothschild et al. on April 17, 2001;
- 62. U.S. Patent No. 6,221,592, issued to Schwartz et al. on April 24, 2001;



Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 7 of 9 of Second Supplemental Information Disclosure  
Statement

63. U.S. Patent No. 6,232,465, issued to Hiatt et al. on May 15, 2001;
64. U.S. Patent No. 6,242,193, issued to Anazawa et al. on June 5, 2001;
65. U.S. Patent No. 6,245,507, issued to Bogdanov on June 12, 2001;
66. U.S. Patent No. 6,255,083, issued to Williams on July 3, 2001;
67. U.S. Patent No. 6,255,475, issued to Kwiatkowski on July 3, 2001;
68. U.S. Patent No. 6,274,320, issued to Rothberg et al. on August 14, 2001;
69. U.S. Patent No. 6,277,607, issued to Tyagi et al. on August 21, 2001;
70. U.S. Patent No. 6,287,821, issued to Shi et al. on September 11, 2001;
71. U.S. Patent No. 6,294,324, issued to Bensimon et al. on September 25, 2001;
72. U.S. Patent No. 6,309,829, issued to Livak et al. on October 30, 2001;
73. U.S. Patent No. 6,309,836, issued to Kwiatkowski on October 30, 2001;

Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 8 of 9 of Second Supplemental Information Disclosure  
Statement

74. U.S. Patent No. 6,312,893, issued to Van Ness et al. on  
November 6, 2001; and
75. U.S. Patent No. 6,316,230, issued to Egholm on November 13,  
2001.

In accordance with 37 C.F.R. §1.98(a)(2)(ii), copies of U.S.  
Patents and U.S. Patent Application Publications need not be  
provided. Accordingly, copies of the documents listed above as  
items 1-75 are not submitted herewith.

This Information Disclosure Statement is being submitted before  
the mailing of the first Office Action on the merits. In  
accordance with 37 C.F.R. §1.97(b) no fee is required.

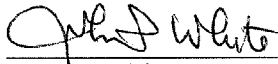
The Examiner is respectfully requested to make the above-listed  
references of record in the subject application by initialing and  
dating the attached Substitute PTO-1449 Forms, and returning  
copies of the initialed and dated PTO-1449 Forms to applicant's  
undersigned attorney.

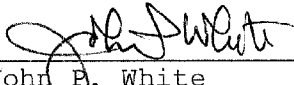
If a telephone interview would be of assistance in advancing  
prosecution of the subject application, applicant's undersigned  
attorney invites the Examiner to telephone him at the number  
provided below.

Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 9 of 9 of Second Supplemental Information Disclosure  
Statement

No fee is deemed necessary in connection with the filing of this  
Information Disclosure Statement. However, if any fee is  
required, authorization is hereby given to charge the amount of  
such fee to Deposit Account No. 03-3125.

Respectfully submitted,

<p><b>Certificate of Transmission</b></p> <p>I hereby certify that this correspondence is being transmitted via the Electronic Filing System (EFS) to the U.S. Patent and Trademark Office on <u>December 19, 2016.</u></p> <p> _____ John P. White Reg. No. 28,678</p>
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\_\_\_\_\_  
John P. White  
Registration No. 28,678  
Attorney for Applicant  
Cooper & Dunham LLP  
30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
(212) 278-0400

/LAYLA D BERRY/

02/07/2017

**Form PTO-1449 (Substitute) U.S. Department of Commerce  
Patent and Trademark Office**

Application Number	15/380,284
Filing Date	December 15, 2016
First Named Inventor	Jingyue Ju
Art Unit	1637
Examiner Name	Jezia Riley
Attorney Docket No.	62239-BZA9/JPW/AC

**INFORMATION DISCLOSURE STATEMENT  
(Use several sheets if necessary)**
**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	1	4,711,955	12-08-1987	Ward et al.
	2	4,772,691	09-20-1988	Herman
	3	4,824,775	04-25-1989	Dattagupta et al.
	4	4,863,849	09-05-1989	Melamede
	5	5,043,272	08-27-1991	Hartley
	6	5,118,605	06-02-1992	Urdea
	7	5,174,962	12-29-1992	Brennan
	8	5,175,269	12-29-1992	Stavrianopoulos
	9	5,302,509	04-12-1994	Cheeseman
	10	5,308,990	05-03-1994	Takahashi et al.
	11	5,328,824	07-12-1994	Ward et al.
	12	5,332,666	07-26-1994	Prober et al.
	13	5,436,143	07-25-1995	Hyman
	14	5,437,975	08-01-1995	McClelland et al.
	15	5,449,767	09-12-1995	Ward et al.
	16	5,476,928	12-19-1995	Ward et al.
	17	5,516,664	05-14-1996	Hyman
	18	5,534,424	07-09-1996	Uhlen et al.
	19	5,547,839	08-20-1996	Dower et al.
	20	5,547,859	08-20-1996	Goodman et al.
	21	5,556,748	09-17-1996	Douglas
	22	5,599,675	02-04-1997	Brenner
	23	5,602,000	02-11-1997	Hyman
	24	5,637,469	06-10-1997	Wilding et al.
	25	5,654,419	08-05-1997	Mathies et al.
	26	5,658,736	08-19-1997	Wong

**EXAMINER  
SIGNATURE**
**DATE CONSIDERED**

\***EXAMINER:** Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

Applicant: The Trustees of Columbia University in the City of New York  
Serial No.: 15/380,284  
Filed: December 15, 2016  
Second SIDS Exhibit A

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	27	5,709,999	01-20-1998	Shattuck-Eidens et al.
	28	5,714,330	02-03-1998	Brenner et al.
	29	5,728,528	03-17-1998	Mathies et al.
	30	5,763,594	06-09-1998	Hiatt et al.
	31	5,770,365	06-23-1998	Lane et al.
	32	5,770,367	06-23-1998	Southern et al.
	33	5,789,167	08-04-1998	Konrad
	34	5,798,210	08-25-1998	Canard et al.
	35	5,808,045	09-15-1998	Hiatt et al.
	36	5,821,356	10-13-1998	Khan et al.
	37	5,834,203	11-10-1998	Katzir et al.
	38	5,844,106	12-01-1998	Seela et al.
	39	5,849,542	12-15-1998	Reeve et al.
	40	5,853,992	12-29-1998	Glazer et al.
	41	5,856,104	01-05-1999	Chee et al.
	42	5,869,255	02-09-1999	Mathies et al.
	43	5,872,244	02-16-1999	Hiatt et al.
	44	5,885,775	03-23-1999	Haff et al.
	45	5,908,755	06-01-1999	Kumar et al.
	46	5,945,283	08-31-1999	Kwok et al.
	47	5,962,228	10-05-1999	Brenner
	48	6,001,566	12-14-1999	Canard et al.
	49	6,001,611	12-14-1999	Will
	50	6,008,379	12-28-1999	Benson et al.
	51	6,028,190	02-22-2000	Mathies et al.
	52	6,074,823	06-13-2000	Koster

<b>EXAMINER SIGNATURE</b>	<b>DATE CONSIDERED</b>
<p><small>*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</small></p>	

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	53	6,087,095	07-11-2000	Rosenthal et al.
	54	6,136,543	10-24-2000	Anazawa et al.
	55	6,175,107	01-16-2001	Juvinall
	56	6,197,557	03-06-2001	Makarov et al.
	57	6,207,831	03-27-2001	Auer et al.
	58	6,210,891	04-03-2001	Nyren et al.
	59	6,214,987	04-10-2001	Hiatt et al.
	60	6,218,118	04-17-2001	Sampson et al.
	61	6,218,530	04-17-2001	Rothschild et al.
	62	6,221,592	04-24-2001	Schwartz et al.
	63	6,232,465	05-15-2001	Hiatt et al.
	64	6,242,193	06-05-2001	Anazawa et al.
	65	6,245,507	06-12-2001	Bogdanov
	66	6,255,083	07-03-2001	Williams
	67	6,255,475	07-03-2001	Kwiatkowski
	68	6,274,320	08-14-2001	Rothberg et al.
	69	6,277,607	08-21-2001	Tyagi et al.
	70	6,287,821	09-11-2001	Shi et al.
	71	6,294,324	09-25-2001	Bensimon et al.
	72	6,309,829	10-30-2001	Livak et al.
	73	6,309,836	10-30-2001	Kwiatkowski
	74	6,312,893	11-06-2001	Van Ness et al.
	75	6,316,230	11-13-2001	Egholm et al.

EXAMINER SIGNATURE /LAYLA D BERRY/	DATE CONSIDERED 02/07/2017
------------------------------------	----------------------------

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard S1.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

THIRD SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

1. U.S. Patent No. 6,335,155, issued to Wells et al. on January 1, 2002;
2. U.S. Patent No. 6,361,940, issued to Van Ness et al. on March 26, 2002;
3. U.S. Patent No. 6,380,378, issued to Kitamura et al. on April 30, 2002;
4. U.S. Patent No. 6,495,680, issued to Gong on December 17, 2002;
5. U.S. Patent No. 6,524,829, issued to Seeger on February 25, 2003;

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6. U.S. Patent No. 6,555,349, issued to O'Donnell on April 29, 2003;
7. U.S. Patent No. 6,613,508, issued to Ness et al. on September 2, 2003;
8. U.S. Patent No. 6,613,513, issued to Parce et al. on September 2, 2003;
9. U.S. Patent No. 6,632,655, issued to Mehta et al. on October 14, 2003;
10. U.S. Patent No. 6,639,088, issued to Kwiatkowski on October 28, 2003;
11. U.S. Patent No. 6,664,399, issued to Sabesan on December 16, 2003;
12. U.S. Patent No. 6,713,255, issued to Makino et al. on March 30, 2004;
13. U.S. Patent No. 6,780,591, issued to Williams et al. on August 24, 2004;
14. U.S. Patent No. 6,787,308, issued to Balasubramanian et al. on September 7, 2004;
15. U.S. Patent No. 6,818,395, issued to Quake et al. on November 16, 2004;
16. U.S. Patent No. 6,833,246, issued to Balasubramanian on December 21, 2004;



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17. U.S. Patent No. 6,858,393, issued to Anderson et al. on February 22, 2005;
18. U.S. Patent No. 6,864,052, issued to Drmanac et al. on March 8, 2005;
19. U.S. Patent No. 6,911,345, issued to Quake et al. on June 28, 2005;
20. U.S. Patent No. 6,934,636, issued to Skierczynski et al. on August 23, 2005;
21. U.S. Patent No. 6,982,146, issued to Schneider et al. on January 3, 2006;
22. U.S. Patent No. 7,037,687, issued to Williams et al. on May 2, 2006;
23. U.S. Patent No. 7,056,661, issued to Korlach et al. on June 6, 2006;
24. U.S. Patent No. 7,056,666, issued to Dower et al. on June 6, 2006;
25. U.S. Patent No. 7,057,026, issued to Barnes on June 6, 2006;
26. U.S. Patent No. 7,057,031, issued to Olejnik et al. on June 6, 2006;
27. U.S. Patent No. 7,078,499, issued to Odedra et al. on July 18, 2006;
28. U.S. Patent No. 7,105,300, issued to Parce et al. on September 12, 2006;

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Statement

29. U.S. Patent No. 7,270,951, issued to Stemple et al. on September 18, 2007;
30. U.S. Patent No. 7,329,496, issued to Dower et al. on February 12, 2008;
31. U.S. Patent No. 7,414,116, issued to Milton et al. on August 19, 2008;
32. U.S. Patent No. 7,427,673, issued to Balasubramanian et al. on September 23, 2008;
33. U.S. Patent No. 7,459,275, issued to Dower et al. on December 2, 2008;
34. U.S. Patent No. 7,566,537, issued to Balasubramanian et al. on July 28, 2009;
35. U.S. Patent Application Publication No. 2002/0012966, Shi et al., published January 31, 2002;
36. U.S. Patent Application Publication No. 2002/0168642 A1, Drukier, published November 14, 2002;
37. U.S. Patent Application Publication No. 2003/0008285 A1, Fischer, published January 9, 2003;
38. U.S. Patent Application Publication No. 2003/0022225 A1, Monforte et al., published January 30, 2003;
39. U.S. Patent Application Publication No. 2003/0044871, Cutsforth et al., published March 6, 2003;

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Statement

40. U.S. Patent Application Publication No. 2003/0054360 A1,  
Gold et al., published March 20, 2003;
41. U.S. Patent Application Publication No. 2003/0099972,  
Olejnik et al., published May 29, 2003;
42. U.S. Patent Application Publication No. 2003/0166282 A1,  
Brown et al., published September 4, 2003;
43. U.S. Patent Application Publication No. 2003/0186256,  
Fischer, published October 2, 2003;
44. U.S. Patent Application Publication No. 2003/0190680,  
Rothschild et al., published October 9, 2003;
45. U.S. Patent Application Publication No. 2003/0198982 A1,  
Seela et al., published October 23, 2003;
46. U.S. Patent Application Publication No. 2004/0014096,  
Anderson et al., published January 22, 2004;
47. U.S. Patent Application Publication No. 2004/0096825,  
Chenna et al., published May 20, 2004;
48. U.S. Patent Application Publication No. 2005/0170367 A1,  
Quake et al., published August 4, 2005;
49. U.S. Patent Application Publication No. 2005/0239134 A1,  
Gorenstein et al., published October 27, 2005;
50. U.S. Patent Application Publication No. 2006/0003352, Lipkin  
et al., published January 5, 2006;

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Page 6 of 10 of Third Supplemental Information Disclosure  
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51. U.S. Patent Application Publication No. 2006/0105461 A1,  
Tom-Moy et al., published May 18, 2006;
52. U.S. Patent Application Publication No. 2006/0160113,  
Korlach et al., published July 20, 2006;
53. U.S. Patent Application Publication No. 2006/0160081 A1,  
Milton et al., published July 20, 2006;
54. U.S. Patent Application Publication No. 2006/0240439, Smith  
et al., published October 26, 2006;
55. U.S. Patent Application Publication No. 2007/0166705, Milton  
et al., published July 19, 2007;
56. U.S. Patent Application Publication No 2009/0088332 A1, Ju  
et al., published April 2, 2009;
57. U.S. Patent Application Publication No. 2012/0052489 A1,  
Gordon et al., published March 1, 2012;
58. U.S. Application for A METHOD FOR DIRECT NUCLEIC ACID  
SEQUENCING; U.S. Serial No. 09/266,187, filed March 10,  
1999;
59. U.S. Serial No. 90/008,149, filed August 4, 2006, Gitten;
60. U.S. Serial No. 90/008,152, filed August 3, 2006, Gitten;
61. International Search Report issued September 26, 2003 in  
connection with PCT/US03/21818;
62. International Preliminary Examination Report issued on March  
18, 2005 in connection with PCT/US03/21818;

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63. Notification of Transmittal of International Search Report and Written Opinion, issued May 22, 2008 in connection with International Application No. PCT/US06/45180;
64. International Preliminary Report on Patentability issued on September 5, 2006 in connection with PCT/US05/06960;
65. International Search Report issued October 29, 2007 in connection with PCT International Application No. PCT/US07/13559;
66. Supplementary European Search Report issued February 9, 2007 in connection with European Patent Application No. 03764568.6;
67. Supplementary European Search Report issued September 9, 2008 in connection with PCT International Application No. PCT/US05/06960 (**Exhibit 1**);
68. International Search Report issued January 23, 2002 in connection with PCT/US01/28967;
69. International Search Report issued September 18, 2002 in connection with PCT/US02/09752;
70. International Preliminary Examination Report issued on March 17, 2003 in connection with PCT/US02/09752;
71. Supplementary European Search Report issued May 25, 2005 in connection with European Patent Application No. 02728606.1;
72. Written Opinion of the International Searching Authority issued October 27, 2005 in connection with PCT/US05/06960;

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- 73. Written Opinion of the International Searching Authority issued December 15, 2006 in connection with PCT/US05/13883;
- 74. International Search Report issued June 8, 2004 in connection with PCT/US03/39354;
- 75. International Search Report issued November 4, 2005 in connection with PCT/US05/06960; and
- 76. International Search Report issued December 15, 2006 in connection with PCT/US05/13883.

In accordance with 37 C.F.R. §1.98(a)(2)(ii), copies of U.S. Patents and U.S. Patent Application Publications need not be provided. Accordingly, copies of the documents listed above as items 1-57 are not submitted herewith.

The above-identified application claims benefit under 35 U.S.C. §120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now pending, which is a continuation of U.S. Serial No. 13/959,660, filed August 5, 2013, now U.S. Patent No. 9,133,511, issued September 15, 2015, which is a continuation of U.S. Serial No. 13/672,437, filed November 8, 2012, now abandoned, which is a continuation of U.S. Serial No. 13/339,089, filed December 28, 2011, now abandoned, which is a continuation of U.S. Serial No. 12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575, issued January 3, 2012, which is a continuation of U.S. Serial No. 11/810,509, filed June 5, 2007, now U.S. Patent No. 7,790,869, issued September 7, 2010, which is a continuation of U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S. Patent No. 7,345,159, issued March 18, 2008, which is a divisional of U.S. Serial No. 09/972,364, filed October 5, 2001,

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now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming  
the benefit of U.S. Provisional Application No. 60/300,894, filed  
June 26, 2001, and a continuation-in-part of U.S. Serial No.  
09/684,670, filed October 6, 2000, now abandoned.

In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents  
listed above as items 58-66 and 68-76 need not be provided  
because such copies have previously been submitted in Information  
Disclosure Statements, or cited by the U.S. Patent Office, in  
connection with one or more of U.S. Serial No. 14/670,748, U.S.  
Serial No. 13/959,660, U.S. Serial No. 13/672,437, U.S. Serial  
No. 13/339,089, U.S. Serial No. 12/804,284, U.S. Serial No.  
11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No.  
09/972,364.

A copy of the document listed herein as item 67 is attached  
hereto as **Exhibit 1**.

This Information Disclosure Statement is being submitted before  
the mailing of the first Office Action on the merits. In  
accordance with 37 C.F.R. §1.97(b) no fee is required.

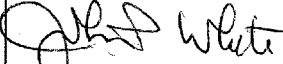
The Examiner is respectfully requested to make the above-listed  
references of record in the subject application by initialing and  
dating the attached Substitute PTO-1449 Forms, and returning  
copies of the initialed and dated PTO-1449 Forms to applicant's  
undersigned attorney.


If a telephone interview would be of assistance in advancing  
prosecution of the subject application, applicant's undersigned  
attorney invites the Examiner to telephone him at the number  
provided below.

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No fee is deemed necessary in connection with the filing of this  
Information Disclosure Statement. However, if any fee is  
required, authorization is hereby given to charge the amount of  
such fee to Deposit Account No. 03-3125.

Respectfully submitted,

<p><b>Certificate of Transmission</b></p> <p>I hereby certify that this correspondence is being transmitted via the Electronic Filing System (EFS) to the U.S. Patent and Trademark Office on <u>December 19, 2016.</u></p> <p> _____ John P. White Reg. No. 28,678</p>
---

  
\_\_\_\_\_  
John P. White  
Registration No. 28,678  
Attorney for Applicant  
Cooper & Dunham LLP  
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20<sup>th</sup> Floor  
New York, New York 10112  
(212) 278-0400



<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	1	6,335,155	01-01-2002	Wells et al.
	2	6,361,940	03-26-2002	Van Ness et al.
	3	6,380,378	04-30-2002	Kitamura et al.
	4	6,495,680	12-17-2002	Gong
	5	6,524,829	02-25-2003	Seeger
	6	6,555,349	04-29-2003	O'Donnell
	7	6,613,508	09-02-2003	Ness et al.
	8	6,613,513	09-02-2003	Parce et al.
	9	6,632,655	10-14-2003	Mehta et al.
	10	6,639,088	10-28-2003	Kwiatkowski
	11	6,664,399	12-16-2003	Sabesan
	12	6,713,255	03-30-2004	Makino et al.
	13	6,780,591	08-24-2004	Williams et al.
	14	6,787,308	09-07-2004	Balasubramanian et al.
	15	6,818,395	11-16-2004	Quake et al.
	16	6,833,246	12-21-2004	Balasubramanian
	17	6,858,393	02-22-2005	Anderson et al.
	18	6,864,052	03-08-2005	Drmanac et al.
	19	6,911,345	06-28-2005	Quake et al.
	20	6,934,636	08-23-2005	Skierczynski et al.
	21	6,982,146	01-03-2006	Schneider et al.
	22	7,037,687	05-02-2006	Williams et al.
	23	7,056,661	06-06-2006	Korlach et al.
	24	7,056,666	06-06-2006	Dower et al.
	25	7,057,026	06-06-2006	Barnes et al.
	26	7,057,031	06-06-2006	Olejniak et al.

EXAMINER  
SIGNATURE

DATE CONSIDERED

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

Applicant: The Trustees of Columbia University in the City of New York  
Serial No.: 15/380,284  
Filed: December 15, 2016  
Third SIDS Exhibit A

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
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	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	27	7,078,499	07-18-2006	Odedra et al.
	28	7,105,300	09-12-2006	Parce et al.
	29	7,270,951	09-18-2007	Stemple et al.
	30	7,329,496	02-12-2008	Dower et al.
	31	7,414,116	08-19-2008	Milton et al.
	32	7,427,673	09-23-2008	Balasubramanian et al.
	33	7,459,275	12-02-2008	Dower et al.
	34	7,566,537	07-28-2009	Balasubramanian et al.
	35	2002/0012966	01-31-2002	Shi et al.
	36	2002/0168642	11-14-2002	Drukier
	37	2003/0008285	01-09-2003	Fischer
	38	2003/0022225	01-30-2003	Monforte Joseph A. et al.
	39	2003/0044871	03-06-2003	Cutsforth Gwyn A. et al.
	40	2003/0054360	03-20-2003	Gold et al.
	41	2003/0099972	05-29-2003	Olejniak et al.
	42	2003/0166282	09-04-2003	Brown et al.
	43	2003/0186256	10-02-2003	Fischer
	44	2003/0190680	10-09-2003	Rothschild Kenneth J. et al.
	45	2003/0198982	10-23-2003	Seela et al.
	46	2004/0014096	01-22-2004	Anderson Jack D. et al.
	47	2004/0096825	05-20-2004	Chenna et al.
	48	2005/0170367	08-04-2005	Quake Stephen R. et al.
	49	2005/0239134	10-27-2005	Gorenstein David G. et al.
	50	2006/0003352	01-05-2006	Lipkin et al.
	51	2006/0105461	05-18-2006	Tom-Moy et al.
	52	2006/0160081	07-20-2006	Milton et al.

<b>EXAMINER SIGNATURE</b>	<b>DATE CONSIDERED</b>
<p><b>*EXAMINER:</b> Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</p>	

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	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	53	2006/0160113	07-20-2006	Korlach et al.
	54	2006/0240439	10-26-2006	Smith et al.
	55	2007/0166705	07-19-2007	Milton et al.
	56	2009/0088332	04-02-2009	Ju et al.
	57	2012/0052489	03-01-2012	Gordon et al.

### FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T <sup>6</sup>

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
	58	U.S. Application for A METHOD FOR DIRECT NUCLEIC ACID SEQUENCING; U.S. Serial No. 09/266,187, filed March 10, 1999	
	59	U.S. Serial No. 90/008,149, filed August 4, 2006, Gitten	
	60	U.S. Serial No. 90/008,152, filed August 3, 2006, Gitten	
	61	International Search Report issued September 26, 2003 in connection with PCT/US03/21818	
	62	International Preliminary Examination Report issued on March 18, 2005 in connection with PCT/US03/21818	
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	66	Supplementary European Search Report issued February 9, 2007 in connection with European Patent Application No. 03764568.6	

<b>EXAMINER SIGNATURE</b>	<b>DATE CONSIDERED</b>
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\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

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	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
	67	Supplementary European Search Report issued September 9, 2008 in connection with PCT International Application No. PCT/US05/06960	
	68	International Search Report issued January 23, 2002 in connection with PCT/US01/28967	
	69	International Search Report issued September 18, 2002 in connection with PCT/US02/09752	
	70	International Preliminary Examination Report issued on March 17, 2003 in connection with PCT/US02/09752	
	71	Supplementary European Search Report issued May 25, 2005 in connection with European Patent Application No. 02728606.1	
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	75	International Search Report issued November 4, 2005 in connection with PCT/US05/06960	
	76	International Search Report issued December 15, 2006 in connection with PCT/US05/13883	

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SIGNATURE**
**DATE CONSIDERED**

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

/LAYLA D BERRY/

02/07/2017  
Page 36 of 233

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B./

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

**By EFS**

Commissioner for Patents  
Alexandria, VA 22313-1450

**FOURTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

1. PCT International Application Publication No. WO 89/09282, CEMU Bioteknik, published October 5, 1989;
2. PCT International Application Publication No. WO 90/13666, Amersham International PLC, published November 15, 1990;
3. PCT International Application Publication No. WO 91/06678, Stanford Research Institute, published May 16, 1991;
4. PCT International Application Publication No. WO 92/10587, Affymax Technologies, published June 25, 1992;
5. PCT International Application Publication No. WO 93/05183, Baylor College of Medicine, published March 18, 1993;
6. PCT International Application Publication No. WO 93/21340, Medical Research Council, published October 28, 1993;

Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 2 of 8 of Fourth Supplemental Information Disclosure  
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7. PCT International Application Publication No. WO 94/14972,  
Hyman, Edward David, published July 7, 1994;
8. PCT International Application Publication No. WO 96/07669,  
Rose-Hiatt Biotechnology Partnership, published March 14,  
1996;
9. PCT International Application Publication No. WO 96/23807,  
Kwiatkowski, Marek, published August 8, 1996;
10. PCT International Application Publication No. WO 96/27025,  
Rabani, Michael Ely, published September 6, 1996;
11. PCT International Application Publication No. WO 97/08183,  
Lane, Michael J., published March 6, 1997;
12. PCT International Application Publication No. WO 97/27317,  
Affymetrix, Inc., published July 31, 1997;
13. PCT International Application Publication No. WO 97/35033,  
Molecular Tool, Inc., published September 25, 1997;
14. PCT International Application Publication No. WO 98/30720,  
Nexstar Pharmaceuticals, published July 16, 1998;
15. PCT International Application Publication No. WO 98/44151,  
Glaxo Group LTD., published October 8, 1998;
16. PCT International Application Publication No. WO 99/05315,  
Medical Biosystems LTD., published February 4, 1999;
17. PCT International Application Publication No. WO 99/57321,  
Arizona Board of Regents, published November 11, 1999;
18. PCT International Application Publication No. WO 00/02895,  
Brax Group LTD, published January 20, 2000;

Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 3 of 8 of Fourth Supplemental Information Disclosure  
Statement

19. PCT International Publication No. WO 00/06770, Solexa LTD.,  
published February 10, 2000;
20. PCT International Application Publication No. WO 00/09753,  
Caliper Technologies Corp., published February 24, 2000;
21. PCT International Application Publication No. WO 00/15844,  
Incyte Pharmaceuticals, Inc., published March 23, 2000;
22. PCT International Application Publication No. WO 00/18956,  
Stefan Seeger, published April 6, 2000;
23. PCT International Application Publication No. WO 00/21974,  
The Perkin-Elmer Foundation, published April 20, 2000;
24. PCT International Application Publication No. WO 00/50172,  
Caliper Technologies Corp., published August 31, 2000;
25. PCT International Application Publication No. WO 00/50642,  
Caliper Technologies Corp., published August 31, 2000;
26. PCT International Application Publication No. WO 00/53805,  
Armes et al., published September 14, 2000;
27. PCT International Application Publication No. WO 00/53812,  
President and Fellows of Harvard College, published  
September 14, 2000;
28. PCT International Application Publication No. WO 00/70073,  
Cornell Research Foundation, Inc., published November 23,  
2000;
29. PCT International Application Publication No. WO 01/16375,  
The Government of the United States of America, as  
represented by the Secretary, Department of Human Health and  
Services, published March 8, 2001;

Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 4 of 8 of Fourth Supplemental Information Disclosure  
Statement

30. PCT International Application Publication No. WO 01/23610,  
Solexa LTD., published April 5, 2001;
31. PCT International Application Publication No. WO 01/25247,  
Quiatech AB, published April 12, 2001;
32. PCT International Application Publication No. WO 01/27625 A,  
Leif et al., published April 19, 2001;
33. PCT International Application Publication No. WO 01/32930,  
California Institute of Technology, published May 10, 2001;
34. PCT International Application Publication No. WO 01/57248,  
Solexa LTD., published August 9, 2001;
35. PCT International Application Publication No. WO 01/57249,  
Solexa LTD., published August 9, 2001;
36. PCT International Application Publication No. WO 01/92284,  
Amersham Pharm. Biotech. Ltd., published December 6, 2001;
37. PCT International Application Publication No. WO 02/02813,  
Amersham Pharmacia Biotech UK LTD., published January 10,  
2002;
38. PCT International Application Publication No. WO 02/72892,  
California Institute of Technology, published September 19,  
2002
39. PCT International Application Publication No. WO 02/88381,  
Genovoxx GMBH, published November 7, 2002;
40. PCT International Application Publication No. WO 02/88382,  
Genovoxx GMBH, published November 7, 2002;



Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
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41. PCT International Application Publication No. WO 03/02767,  
Agilent Technologies, Inc., published January 9, 2003;
42. PCT International Publication No. WO 03/20968, Genovoxx  
GMBH, published March 13, 2003;
43. PCT International Application Publication No. WO 03/48178,  
Amersham Biosciences UK LTD., published June 12, 2003;
44. PCT International Application Publication No. WO 03/48387,  
Solexa LTD., published June 12, 2003;
45. PCT International Application Publication No. WO 03/85135,  
Pyrosequencing AB, published October 16, 2003;
46. PCT International Application Publication No. WO 04/18493,  
Solexa Ltd., published March 4, 2004;
47. PCT International Application Publication No. WO 04/18497,  
Solexa Ltd., published March 4, 2004;
48. PCT International Application Publication No. WO 06/73436,  
Lipkin et al., published July 13, 2006;
49. PCT International Application Publication No. WO 07/62105,  
Ju et al., published May 31, 2007;
50. Canadian Patent Application No. 2,408,143, filed November 7,  
2002 by Amersham Biosciences UK Ltd.;
51. German Patent No. DE 4141178, issued June 17, 1993 to  
Ansorge;
52. European Patent No. EP 0808320 B1, Quiatech AB, granted  
April 9, 2003;

Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 6 of 8 of Fourth Supplemental Information Disclosure  
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- 53. European Patent No. EP 0992511 B1, Operon Biotechnology, Inc., granted March 11, 2009;
- 54. European Patent Application No. EP 0995804 A2, Affymetrix, Inc., published April 26, 2000;
- 55. European Patent Application No. EP 1182267 A1, Toyota Jidosha Kabushiki Kaisha, published February 27, 2002;
- 56. European Patent No. EP 1218391 B1, Helicos Biosciences Corporation, granted April 11, 2007; and
- 57. European Patent Application No. EP 1291354 A2, President and Fellows of Harvard College, published March 12, 2003.

The above-identified application claims benefit under 35 U.S.C. §120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now pending, which is a continuation of U.S. Serial No. 13/959,660, filed August 5, 2013, now U.S. Patent No. 9,133,511, issued September 15, 2015, which is a continuation of U.S. Serial No. 13/672,437, filed November 8, 2012, now abandoned, which is a continuation of U.S. Serial No. 13/339,089, filed December 28, 2011, now abandoned, which is a continuation of U.S. Serial No. 12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575, issued January 3, 2012, which is a continuation of U.S. Serial No. 11/810,509, filed June 5, 2007, now U.S. Patent No. 7,790,869, issued September 7, 2010, which is a continuation of U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S. Patent No. 7,345,159, issued March 18, 2008, which is a divisional of U.S. Serial No. 09/972,364, filed October 5, 2001, now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming the benefit of U.S. Provisional Application No. 60/300,894, filed June 26, 2001, and a continuation-in-part of U.S. Serial No. 09/684,670, filed October 6, 2000, now abandoned.

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New York  
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Page 7 of 8 of Fourth Supplemental Information Disclosure  
Statement

In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents listed above as items 1-57 need not be provided because such copies have previously been submitted in Information Disclosure Statements, or cited by the U.S. Patent Office, in connection with one or more of U.S. Serial No. 14/670,748, U.S. Serial No. 13/959,660, U.S. Serial No. 13/672,437, U.S. Serial No. 13/339,089, U.S. Serial No. 12/804,284, U.S. Serial No. 11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No. 09/972,364.

This Information Disclosure Statement is being submitted before the mailing of the first Office Action on the merits. In accordance with 37 C.F.R. §1.97(b) no fee is required.

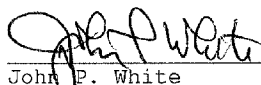
The Examiner is respectfully requested to make the above-listed references of record in the subject application by initialing and dating the attached Substitute PTO-1449 Forms, and returning copies of the initialed and dated PTO-1449 Forms to applicant's undersigned attorney.

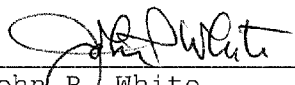
If a telephone interview would be of assistance in advancing prosecution of the subject application, applicant's undersigned attorney invites the Examiner to telephone him at the number provided below.

Applicant : The Trustees of Columbia University in the City of  
New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 8 of 8 of Fourth Supplemental Information Disclosure  
Statement

No fee is deemed necessary in connection with the filing of this  
Information Disclosure Statement. However, if any fee is  
required, authorization is hereby given to charge the amount of  
such fee to Deposit Account No. 03-3125.

Respectfully submitted,

<p><b>Certificate of Transmission</b></p> <p>I hereby certify that this correspondence is being transmitted via the Electronic Filing System (EFS) to the U.S. Patent and Trademark Office on <u>December 19, 2016.</u></p> <p> _____ John P. White Reg. No. 28,678</p>
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\_\_\_\_\_  
John P. White  
Registration No. 28,678  
Attorney for Applicant  
Cooper & Dunham LLP  
30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
(212) 278-0400

**Form PTO-1449 (Substitute) U.S. Department of Commerce  
Patent and Trademark Office**
**INFORMATION DISCLOSURE STATEMENT  
(Use several sheets if necessary)**

<b>Application Number</b>	15/380,284
<b>Filing Date</b>	December 15, 2016
<b>First Named Inventor</b>	Jingyue Ju
<b>Art Unit</b>	1637
<b>Examiner Name</b>	Jezia Riley
<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

**FOREIGN PATENT DOCUMENTS**

Examiner Initials <sup>4</sup>	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>2</sup> +Number <sup>3</sup> +Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T <sup>6</sup>
	1	WO 1989/09282	10-05-1989	CEMU Biotechnik	
	2	WO 1990/13666	11-15-1990	Amersham International PLC	
	3	WO 1991/06678	05-16-1991	Stanford Research Institute	
	4	WO1992/10587	06-25-1992	Affymax Technologies	
	5	WO 1993/05183	03-18-1993	Baylor College of Medicine	
	6	WO 1993/21340	10-28-1993	Medical Research Council	
	7	WO 1994/14972	07-07-1994	Hyman	
	8	WO 1996/07669	03-14-1996	Rose-Hiatt Biotechnology Partnership	
	9	WO 1996/23807	08-08-1996	Kwiatkowski	
	10	WO 1996/27025	09-06-1996	Rabani	
	11	WO 1997/08183	03-06-1997	Lane	
	12	WO 1997/27317	07-31-1997	Affymetrix, Inc.	
	13	WO 1997/35033	09-25-1997	Molecular Tool, Inc.	
	14	WO 1998/30720	07-16-1998	Nexstar Pharmaceuticals	
	15	WO 1998/44151	10-08-1998	Glaxo Group LTD.	
	16	WO 1999/05315	02-04-1999	Medical Biosystems LTD.	
	17	WO 1999/57321	11-11-1999	Arizona Board of Regents	
	18	WO 202000/02895	01-20-2000	Brax Group LTD	
	19	WO 202000/06770	02-10-2000	Solexa LTD.	
	20	WO 202000/09753	02-24-2000	Caliper Technologies Corp.	
	21	WO 2000/15844	03-23-2000	Incyte Pharmaceuticals, Inc.	
	22	WO 2000/18956	04-06-2000	Stefan Seeger	
	23	WO 2000/21974	04-20-2000	The Perkin-Elmer Foundation	
	24	WO 2000/50172	08-31-2000	Caliper Technologies Corp.	
	25	WO 2000/50642	08-31-2000	Caliper Technologies Corp.	
	26	WO 2000/53805	09-14-2000	Armes et al.	
	27	WO 2000/53812	09-14-2000	President and Fellows of Harvard College	
	28	WO 2000/70073	11-23-2000	Cornell Research Foundation, Inc.	

**EXAMINER  
SIGNATURE**
**DATE CONSIDERED**

**\*EXAMINER:** Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

Applicant: The Trustees of Columbia  
University in the City of New York  
Serial No.: 15/380,284  
Filed: December 15, 2016  
Fourth SIDS Exhibit A

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T <sup>6</sup>
	29	WO 2001/16375	03-08-2001	The Government of the United States of America, as represented by the Secretary, Department of Human Health and Services	
	30	WO 2001/23610	04-05-2001	Solexa LTD.	
	31	WO 2001/25247	04-12-2001	Quiatech AB	
	32	WO 2001/27625	04-19-2001	Leif et al.	
	33	WO 2001/32930	05-10-2001	California Institute of Technology	
	34	WO 2001/57248	08-09-2001	Solexa LTD.	
	35	WO 2001/57249	08-09-2001	Solexa LTD.	
	36	WO 2001/92284	12-06-2001	Amersham Pharm. Biotech. Ltd.	
	37	WO 2002/02813	01-10-2002	Amersham Pharmacia Biotech UK LTD.	
	38	WO 2002/72892	09-19-2002	California Institute of Technology	
	39	WO 2002/88381	11-07-2002	Genovox GMBH	
	40	WO 2002/88382	11-07-2002	Genovox GMBH	
	41	WO 2003/02767	01-09-2003	Agilent Technologies, Inc.	
	42	WO 2003/20968	03-12-2003	Genovox GMBH	
	43	WO 2003/48178	06-12-2003	Amersham Biosciences UK LTD.	
	44	WO 2003/48387	06-12-2003	Solexa LTD.	
	45	WO 2003/85135	10-16-2003	Pyrosequencing AB	
	46	WO 2004/18493	03-04-2004	Solexa Ltd.	
	47	WO 2004/18497	03-04-2004	Solexa Ltd.	
	48	WO 2006/73436	07-13-2006	Lipkin et al.	
	49	WO 2007/62105	05-31-2007	Ju et al.	
	50	CA 2,408,143	11-07-2002	Amersham Biosciences UK Ltd.	
	51	DE 4141178	06-17-1993	Ansorge	
	52	EP 0808320	04-09-2003	Quiatech AB	
	53	EP 0992511	03-11-2009	Operon Biotechnology	
	54	EP 0995804	04-26-2000	Affymetrix, Inc.	

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<b>Form PTO-1449 (Substitute)</b> <b>U.S. Department of Commerce</b> <b>Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

## FOREIGN PATENT DOCUMENTS

[illegible]

EXAMINER  
SIGNATURE /LAYLA D BERRY/

DATE CONSIDERED 02/07/2017

**EXAMINER:** Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
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Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

FIFTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

1. ARBO et al. (1993) "Solid Phase Synthesis of Protected Peptides Using New Cobalt (III) Amine Linkers," Int. J. Peptide Protein Res. 42:138-154;
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Applicant : The Trustees of Columbia University in the City of  
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Page 2 of 12 of Fifth Supplemental Information Disclosure  
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Applicant : The Trustees of Columbia University in the City of  
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Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 3 of 12 of Fifth Supplemental Information Disclosure  
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The above-identified application claims benefit under 35 U.S.C. §120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now pending, which is a continuation of U.S. Serial No. 13/959,660, filed August 5, 2013, now U.S. Patent No. 9,133,511, issued September 15, 2015, which is a continuation of U.S. Serial No. 13/672,437, filed November 8, 2012, now abandoned, which is a continuation of U.S. Serial No. 13/339,089, filed December 28, 2011, now abandoned, which is a continuation of U.S. Serial No. 12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575, issued January 3, 2012, which is a continuation of U.S. Serial No. 11/810,509, filed June 5, 2007, now U.S. Patent No. 7,790,869, issued September 7, 2010, which is a continuation of U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S. Patent No. 7,345,159, issued March 18, 2008, which is a divisional of U.S. Serial No. 09/972,364, filed October 5, 2001, now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming the benefit of U.S. Provisional Application No. 60/300,894, filed June 26, 2001, and a continuation-in-part of U.S. Serial No. 09/684,670, filed October 6, 2000, now abandoned.

In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents listed above as items 1-70 need not be provided because such copies have previously been submitted in Information Disclosure

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Statements, or cited by the U.S. Patent Office, in connection with one or more of U.S. Serial No. 14/670,748, U.S. Serial No. 13/959,660, U.S. Serial No. 13/672,437, U.S. Serial No. 13/339,089, U.S. Serial No. 12/804,284, U.S. Serial No. 11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No. 09/972,364.

This Information Disclosure Statement is being submitted before the mailing of the first Office Action on the merits. In accordance with 37 C.F.R. §1.97(b) no fee is required.

The Examiner is respectfully requested to make the above-listed references of record in the subject application by initialing and dating the attached Substitute PTO-1449 Forms, and returning copies of the initialed and dated PTO-1449 Forms to applicant's undersigned attorney.

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicant's undersigned attorney invites the Examiner to telephone him at the number provided below.

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No fee is deemed necessary in connection with the filing of this  
Information Disclosure Statement. However, if any fee is  
required, authorization is hereby given to charge the amount of  
such fee to Deposit Account No. 03-3125.

Respectfully submitted,



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<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> (Use several sheets if necessary)	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
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		<b>Art Unit</b>	1637
		<b>Examiner Name</b>	Jezia Riley
		<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC
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	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

SIXTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

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The above-identified application claims benefit under 35 U.S.C. §120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now pending, which is a continuation of U.S. Serial No. 13/959,660, filed August 5, 2013, now U.S. Patent No. 9,133,511, issued September 15, 2015, which is a continuation of U.S. Serial No. 13/672,437, filed November 8, 2012, now abandoned, which is a continuation of U.S. Serial No. 13/339,089, filed December 28, 2011, now abandoned, which is a continuation of U.S. Serial No. 12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575, issued January 3, 2012, which is a continuation of U.S. Serial No. 11/810,509, filed June 5, 2007, now U.S. Patent No. 7,790,869, issued September 7, 2010, which is a continuation of

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U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S. Patent No. 7,345,159, issued March 18, 2008, which is a divisional of U.S. Serial No. 09/972,364, filed October 5, 2001, now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming the benefit of U.S. Provisional Application No. 60/300,894, filed June 26, 2001, and a continuation-in-part of U.S. Serial No. 09/684,670, filed October 6, 2000, now abandoned.

In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents listed above as items 1-69 need not be provided because such copies have previously been submitted in Information Disclosure Statements, or cited by the U.S. Patent Office, in connection with one or more of U.S. Serial No. 14/670,748, U.S. Serial No. 13/959,660, U.S. Serial No. 13/672,437, U.S. Serial No. 13/339,089, U.S. Serial No. 12/804,284, U.S. Serial No. 11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No. 09/972,364.

This Information Disclosure Statement is being submitted before the mailing of the first Office Action on the merits. In accordance with 37 C.F.R. §1.97(b) no fee is required.

The Examiner is respectfully requested to make the above-listed references of record in the subject application by initialing and dating the attached Substitute PTO-1449 Forms, and returning copies of the initialed and dated PTO-1449 Forms to applicant's undersigned attorney.

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicant's undersigned attorney invites the Examiner to telephone him at the number provided below.

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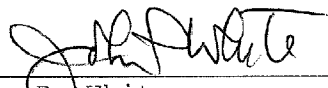
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No fee is deemed necessary in connection with the filing of this  
Information Disclosure Statement. However, if any fee is  
required, authorization is hereby given to charge the amount of  
such fee to Deposit Account No. 03-3125.

Respectfully submitted,



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	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
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<b>EXAMINER SIGNATURE</b>	<b>DATE CONSIDERED</b>
<p>*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</p>	

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	63	WENDY, JEN. Et al. (2000) "New Strategies for Organic Catalysis: The First Enantioselective Organocatalytic 1,3-Dipolar Cycloaddition," J. Am. Chem. Soc. 122:9874-9875	
	64	WOOLLEY, A. T. et al. (1997) "High-Speed DNA Genotyping Using Microfabricated Capillary Array Electrophoresis Chips," Anal. Chem. 69:2181-2186	
	65	YAMASHITA et al. (1987) "Studies on Antitumor Agents VII. Antitumor Activities of O-Alkoxyalkyl Derivatives of 2'-Deoxy-5-trifluoromethyluridine." Chem Pharm. Bull., Vol. 35, pp. 2373-2381	
	66	ZAVGORODNY, S. et al. (1991) "1-Alkylthioalkylation of Nucleoside Hydroxyl Functions and Its synthetic Applications: A New Versatile Method in Nucleoside Chemistry," Tetrahedron Letters, 32(51): 7593-7596	
	67	ZAVGORODNY et al. (2000) "S,X-Acetals in Nucleoside Chemistry. III. Synthesis of 2'- and 3'-O-Azidomethyl Derivatives of Ribonucleosides" Nucleosides, Nucleotides and Nucleic Acids, 19(10-12):1977-1991	
	68	ZHANG et al. (2002) "Synthesis of Releasable Electrophore Tags for Applications in Mass Spectrometry," Bioconjugate Chem., Vol. 13, pages 1002-1012	
	69	ZHU, Z., CHAO, J., YU, H, et al. (1994) "Directly Labeled DNA Probes Using Fluorescent Nucleotides with Different Length Linkers," Nucleic Acids Res., 22:3418-3422	

EXAMINER  
SIGNATURE /LAYLA D BERRY/

DATE CONSIDERED 02/07/2017

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

SEVENTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

The items listed below are documents filed in connection with the *Inter Partes* Review of U.S. Patent No. 7,713,698, IPR2012-00006. U.S. Patent No. 7,713,698 has a common licensee and common inventors with the subject application.

1. September 16, 2012 Petition for Inter Partes Review of U.S. Patent No. 7,713,698, issued May 11, 2010;
2. September 16, 2012 Motion to Waive Page Limit and Proposed Petition in connection with Petition for Inter Partes Review of U.S. Patent No. 7,713,698, issued May 11, 2010;
3. December 20, 2012 Preliminary Response under 37 C.F.R. 42.107 in connection with IPR2012-00006;
4. March 12, 2013 Decision on Petition for Inter Partes Review

Applicant : The Trustees of Columbia University in the City of New  
York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
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- in connection with IPR2012-00006;
5. March 26, 2013 Request for Reconsideration in connection with IPR2012-00006;
  6. April 26, 2013 Opposition to Request for Reconsideration (Rehearing) Under 37 C.F.R. 42.71.(C) in connection with IPR2012-00006;
  7. May 10, 2013 Decision on Request for Rehearing in connection with IPR2012-00006;
  8. August 30, 2013 Substitute Patent Owner Response Under 37 C.F.R. 42.120 in connection with IPR2012-00006;
  9. August 30, 2013 Substitute Patent Owner Motion to Amend Under 37 C.F.R. 42.121 in connection with IPR2012-00006;
  10. September 27, 2013 Petitioner Opposition to Motion to Amend in connection with IPR2012-00006;
  11. September 27, 2013 Petitioner Reply to Response to Petition in connection with IPR2012-00006;
  12. November 18, 2013 Substitute Patent Owner Reply on Motion to Amend in connection with IPR2012-00006;
  13. Exhibit 1001, filed September 16, 2012 in connection with IPR2012-00006: U.S. Patent No. 7,713,698, issued May 11, 2010 to Ju et al.;
  14. Exhibit 1002, filed September 16, 2012 in connection with IPR2012-00006: PCT International Application No. PCT/US90/06678 filed October 26, 1990, published on May 16, 1991 as Publication No. WO 91/06678 to SRI INTERNATIONAL;
  15. Exhibit 1003, filed September 16, 2012 in connection with

Applicant : The Trustees of Columbia University in the City of New  
York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 3 of 12 of Seventh Supplemental Information Disclosure Statement

IPR2012-00006: Prober et al. (1987), "A System for Rapid DNA Sequencing with Fluorescent Chain-Terminating Dideoxynucleotides", *Science* Vol. 238, October 16, 1987, pages 336-341;

16. Exhibit 1004, filed September 16, 2012 in connection with IPR2012-00006: U.S. Patent No. 5,242,796 issued September 7, 1993 to Prober et al.;
17. Exhibit 1005, filed September 16, 2012 in connection with IPR2012-00006: U.S. Patent No. 5,547,839 issued August 20, 1996 to Dower et al.;
18. Exhibit 1006, filed September 16, 2012 in connection with IPR2012-00006: PCT International Application No. PCT/US96/02342 filed February 21, 1996, published on September 6, 1996 as Publication No. WO 96/27025 to Ely RABANI;
19. Exhibit 1007, filed September 16, 2012 in connection with IPR2012-00006: PCT International Application No. PCT/GB00/00873 filed March 10, 2000, published on September 14, 2000 as Publication No. WO 00/53805 to ASM SCIENTIFIC, INC.;
20. Exhibit 1008, filed September 16, 2012 in connection with IPR2012-00006: U.S. Patent No. 7,270,951 issued September 18, 2007 to Stemple et al.;
21. Exhibit 1009, filed September 16, 2012 in connection with IPR2012-00006: U.S. Application for A METHOD FOR DIRECT NUCLEIC ACID SEQUENCING; U.S. Serial No. 09/266,187 filed March 10, 1999;
22. Exhibits 1010-1012, filed September 16, 2012 in connection

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York

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Filed : December 15, 2016

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with IPR2012-00006: PCT International Application No.  
PCT/JP97/00239, filed January 31, 1997, published on August  
6, 1998 as Publication No. WO 98/33939 to HITACHI, LTD. with  
certified English translation, and Translation Affidavit;

23. Exhibit 1013, filed September 16, 2012 in connection with  
IPR2012-00006: U.S. Patent No. 5,047,519 issued September  
10, 1991 to Hobbs, Jr. et al.;
24. Exhibit 1014, filed September 16, 2012 in connection with  
IPR2012-00006: U.S. Patent No. 4,804,748 issued February 14,  
1989 to Seela;
25. Exhibit 1015, filed September 16, 2012 in connection with  
IPR2012-00006: U.S. Patent No. 5,844,106 issued December 1,  
1998 to Seela et al.;
26. Exhibit 1016, filed September 16, 2012 in connection with  
IPR2012-00006: PCT International Application No.  
PCT/US89/02170, filed May 18, 1989, published on November  
30, 1989 as Publication No. WO 89/11548 to CETUS  
CORPORATION;
27. Exhibit 1017, filed September 16, 2012 in connection with  
IPR2012-00006: U.S. Patent No. 7,037,687 issued May 2, 2006  
to Williams et al.;
28. Exhibit 1018, filed September 16, 2012 in connection with  
IPR2012-00006: U.S. Patent No. 6,255,083 issued July 3, 2001  
to Williams;
29. Exhibit 1019, filed September 16, 2012 in connection with  
IPR2012-00006: U.S. Patent No. 6,001,566 issued December 14,  
1999 to Canard et al.;
30. Exhibit 1020, filed September 16, 2012 in connection with



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IPR2012-00006: PCT International Application No.  
PCT/GB93/00848, filed April 22, 1993, published on October  
28, 1993 as Publication No. WO 93/21340 to MEDICAL RESEARCH  
COUNCIL;

31. Exhibit 1021, filed September 16, 2012 in connection with  
IPR2012-00006: September 15, 2012 Declaration of George  
Weinstock Under Rule 37 C.F.R. §1.132;
32. Exhibit 1022, filed September 16, 2012 in connection with  
IPR2012-00006: Excerpts of File History of U.S. Patent No.  
7,713,698;
33. Exhibit 1025, filed April 30, 2013 in connection with  
IPR2012-00006: Columbia's Amended Complaint from The  
Trustees of Columbia University in the City of New York v.  
Illumina, Inc., D. Del C.A. No. 12-376 (GMS), filed April  
11, 2012;
34. Exhibit 1026, filed April 30, 2013 in connection with  
IPR2012-00006: Illumina's Answer to Amended Complaint from  
The Trustees of Columbia University in the City of New York  
v. Illumina, Inc., D. Del C.A. No. 12-376 (GMS), filed  
December 21, 2012;
35. Exhibit 1029, filed June 18, 2013 in connection with  
IPR2012-00006: U.S. Patent No. 4,772,691, issued September  
20, 1988 to Herman;
36. Exhibit 1030, filed June 18, 2013 in connection with  
IPR2012-00006: Rosenblum et al., "New Dye-Labeled  
Terminators for Improved DNA Sequencing Patterns," Nucleic  
Acid Research, 1997, Vol. 25, No. 22, pages 4500-4504;
37. Exhibit 1031, filed June 18, 2013 in connection with

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Filed : December 15, 2016  
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IPR2012-00006: PCT International Publication No. WO  
99/49082, published September 30, 1999 to Invitrogen  
Corporation;

38. Exhibit 1032, filed June 18, 2013 in connection with  
IPR2012-00006: U.S. Patent No. 5,449,767, issued September  
12, 1995 to Ward et al.;
39. Exhibit 1033, filed June 18, 2013 in connection with  
IPR2012-00006: U.S. Patent No. 5,948,648, issued September  
7, 1999 to Khan et al.;
40. Exhibit 1034, filed June 18, 2013 in connection with  
IPR2012-00006: June 8, 2013 Videotaped Deposition Transcript  
of George M. Weinstock, Ph.D.;
41. Exhibit 1036, filed September 27, 2013 in connection with  
IPR2012-00006: "Next Generation Genomics: World Map of High-  
throughput Sequencers," September 1, 2013;
42. Exhibit 1037, filed September 27, 2013 in connection with  
IPR2012-00006: GB Application No. 2001 0029012, filed  
December 4, 2001 by Balasubramanian et al.;
43. Exhibit 1039, filed September 27, 2013 in connection with  
IPR2012-00006: Videotaped Deposition Transcript of Dr.  
Xiaohai Liu, March 20, 2013;
44. Exhibit 1040, filed September 27, 2013 in connection with  
IPR2012-00006: Excerpt from videotaped Deposition Transcript  
of George M. Weinstock, Ph.D., June 8, 2013;
45. Exhibit 1041, filed September 27, 2013 in connection with  
IPR2012-00006: Seela et al., "Oligonucleotide Duplex  
Stability Controlled by the 7-Substituents of 7-Deazaguanine  
Bases," Bioorganic & Medical Chemistry Letters, Vol. 5, No.

Applicant : The Trustees of Columbia University in the City of New  
York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 7 of 12 of Seventh Supplemental Information Disclosure Statement

24, pages 3049-3052, 1995;

46. Exhibit 1042, filed September 27, 2013 in connection with  
IPR2012-00006: Ramzaeva et al., "123. 7-Deazaguanine DNA:  
Oligonucleotides with Hydrophobic or Cationic Side Chains,"  
Helvetica Chimica Acta, Vol. 80, pages 1809-1822, 1997;
47. Exhibit 1043, filed September 27, 2013 in connection with  
IPR2012-00006: Ramzaeva et al., "88. 7-Substituted 7-Deaza-  
2'-deoxyguanosines: Regioselective Halogenation of  
Pyrrolo[2,3-d]pyrimidine Nucleosides," Helvetica Chimica  
Acta, Vol. 78, pages 1083-1090, 1995;
48. Exhibit 1044, filed September 27, 2013 in connection with  
IPR2012-00006: Seela et al., "Duplex Stability of  
Oligonucleotides Containing 7-Substituted 7-Deaza- and 8-  
Aza-7-Deazapurine Nucleosides," Nucleosides & Nucleotides,  
16(7-9), pages 963-966, 1997;
49. Exhibit 1045, filed September 27, 2013 in connection with  
IPR2012-00006: Burgess et al., "Syntheses of Nucleosides  
Designed for Combinatorial DNA Sequencing," Chemistry - A  
European Journal, Vol. 5, No. 3, pages 951-960, 1999;
50. Exhibit 1046, filed September 27, 2013 in connection with  
IPR2012-00006: U.S. Patent No. 5,151,507, issued September  
29, 1992 to Hobbs, Jr. et al.;
51. Exhibit 1047, filed September 27, 2013 in connection with  
IPR2012-00006: U.S. Patent No. 7,078,499, issued July 18,  
2006 to Odedra et al.;
52. Exhibit 1048, filed September 27, 2013 in connection with  
IPR2012-00006: GB Application No. 2000 0013276, filed June  
1, 2000 by Odedra et al.;

Applicant : The Trustees of Columbia University in the City of New York

Serial No.: 15/380,284

Filed : December 15, 2016

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53. Exhibit 1049, filed September 27, 2013 in connection with IPR2012-00006: January 28, 2013 Declaration of Dr. Bruce P. Branchaud in Support of Petition for Inter Partes Review of U.S. Patent No. 7,057,026;
54. Exhibit 1050, filed September 27, 2013 in connection with IPR2012-00006: Lee et al., "DNA sequencing with dye-labeled terminators and T7 DNA polymerase: effect of dyes and dNTPs on incorporation of dye-terminators and probability analysis of termination fragments," Nucleic Acids Research, Vol. 20, No. 10, pages 2471-2483, 1992;
55. Exhibit 1051, filed September 27, 2013 in connection with IPR2012-00006: <http://www.answers.com/topic/incubate>, Accessed September 27, 2013;
56. Exhibit 1052, filed September 27, 2013 in connection with IPR2012-00006: [http://en.wikipedia.org/wiki/Fluorenylmethyloxycarbonyl\\_chloride](http://en.wikipedia.org/wiki/Fluorenylmethyloxycarbonyl_chloride), Accessed September 27, 2013;
57. Exhibit 1053, filed September 27, 2013 in connection with IPR2012-00006: September 27, 2013 Declaration of Kevin Burgess;
58. Exhibit 1054, filed September 27, 2013 in connection with IPR2012-00006: Fuji, et al., "An Improved Method for Methoxymethylation of Alcohols under Mild Acidic Conditions," Synthesis - The Journal of Synthetic Organic Chemistry, pages 276-277, April 1975;
59. Exhibit 2001, filed December 20, 2012 in connection with IPR2012-00006: U.S. Patent No. 5,383,858, issued January 24, 1995 to Reilly et al.;

Applicant : The Trustees of Columbia University in the City of New  
York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 9 of 12 of Seventh Supplemental Information Disclosure Statement

60. Exhibit 2006, filed April 26, 2013 in connection with  
IPR2012-00006: Dower patent with highlights;
61. Exhibit 2010, filed June 24, 2013 in connection with  
IPR2012-00006: U.S. Pat. No. 8,088,575 (filed July 19, 2010,  
issued January 3, 2012) (Exhibit 1001 in IPR2013-00011);
62. Exhibit 2011, filed June 24, 2013 in connection with  
IPR2012-00006: U.S. Pat. No. 7,713,698 (filed Aug. 20, 2007,  
issued May 11, 2010) (Exhibit 1001 in IPR2012-00006);
63. Exhibit 2012, filed June 24, 2013 in connection with  
IPR2012-00006: U.S. Pat. No. 7,790,869 (filed June 5, 2007,  
issued September 7, 2010) (Exhibit 1001 in IPR2012-00007);
64. Exhibit 2013, filed June 24, 2013 in connection with  
IPR2012-00006: October 2, 2012 Declaration of George  
Weinstock Under 37 CFR 1.132 (Exhibit 1021 in IPR2013-  
00011);
65. Exhibit 2014, filed June 24, 2013 in connection with  
IPR2012-00006: Petition for Inter Partes Review of U.S. Pat.  
No. 8,088,575 (Paper 4 in IPR2013-00011);
66. Exhibit 2015, filed June 24, 2013 in connection with  
IPR2012-00006: Metzker et al. (1994) Termination of DNA  
synthesis by novel 3'-modified-deoxyribonucleoside 5'-  
triphosphates. Nucleic Acids Res. 22:4259-4267;
67. Exhibit 2016, filed June 24, 2013 in connection with  
IPR2012-00006: Wu et al. (2007) Termination of DNA synthesis  
by N6-alkylated, not 3'-O-alkylated, photocleavable 2'-  
deoxyadenosine triphosphates. Nucleic Acids Res. 35:6339-  
6349;
68. Exhibit 2017, filed June 24, 2013 in connection with

Applicant : The Trustees of Columbia University in the City of New York

Serial No.: 15/380,284

Filed : December 15, 2016

Page 10 of 12 of Seventh Supplemental Information Disclosure Statement

- IPR2012-00006: September 15, 2012 Declaration of George Weinstock Under 37 CFR 1.132 (Exhibit 1021 in IPR2012-00007);
69. Exhibit 2018, filed June 24, 2013 in connection with IPR2012-00006: September 15, 2012 Declaration of George Weinstock Under 37 CFR 1.132 (Exhibit 1021 in IPR2012-00006);
70. Exhibit 2019, filed June 24, 2013 in connection with IPR2012-00006: Definition of "DNA microarray." [http://en.wikipedia.org/wiki/DNA\\_microarray](http://en.wikipedia.org/wiki/DNA_microarray);
71. Exhibit 2020, filed June 24, 2013 in connection with IPR2012-00006: Brettin et al. (2005) Expression capable library for studies of Neisseria gonorrhoeae, version 1.0 BMC Microbiology. 5:50;
72. Exhibit 2021, filed June 24, 2013 in connection with IPR2012-00006: George M. Weinstock, Handbook of Molecular Microbial Ecology, Volume 1-Chapter 18: The Impact of Next-Generation Sequencing Technologies on Metagenomics 141-147 Frans J. de Bruijn ed., John Wiley & Sons, Inc. (2011);
73. Exhibit 2022, filed June 24, 2013 in connection with IPR2012-00006: September 16, 2012 Petition for Inter Partes Review of U.S. Pat. No. 7,713,698 (Paper 3 in IPR2012-00006);
74. Exhibit 2023, filed June 24, 2013 in connection with IPR2012-00006: September 16, 2012 Petition for Inter Partes Review of U.S. Pat. No. 7,790,869 (Paper 5 in IPR2012-00007); and
75. Exhibit 2024, filed June 24, 2013 in connection with

Applicant : The Trustees of Columbia University in the City of New York

Serial No.: 15/380,284

Filed : December 15, 2016

Page 11 of 12 of Seventh Supplemental Information Disclosure Statement

IPR2012-00006: Maxam and Gilbert (1977) A new method for sequencing DNA, Proc. Natl. Acad. Sci. USA. 74:560-564.

The above-identified application claims benefit under 35 U.S.C. §120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now pending, which is a continuation of U.S. Serial No. 13/959,660, filed August 5, 2013, now U.S. Patent No. 9,133,511, issued September 15, 2015, which is a continuation of U.S. Serial No. 13/672,437, filed November 8, 2012, now abandoned, which is a continuation of U.S. Serial No. 13/339,089, filed December 28, 2011, now abandoned, which is a continuation of U.S. Serial No. 12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575, issued January 3, 2012, which is a continuation of U.S. Serial No. 11/810,509, filed June 5, 2007, now U.S. Patent No. 7,790,869, issued September 7, 2010, which is a continuation of U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S. Patent No. 7,345,159, issued March 18, 2008, which is a divisional of U.S. Serial No. 09/972,364, filed October 5, 2001, now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming the benefit of U.S. Provisional Application No. 60/300,894, filed June 26, 2001, and a continuation-in-part of U.S. Serial No. 09/684,670, filed October 6, 2000, now abandoned.

In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents listed above as items 1-75 need not be provided because such copies have previously been submitted in Information Disclosure Statements, or cited by the U.S. Patent Office, in connection with one or more of U.S. Serial No. 14/670,748, U.S. Serial No. 13/959,660, U.S. Serial No. 13/672,437, U.S. Serial No. 13/339,089, U.S. Serial No. 12/804,284, U.S. Serial No. 11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No. 09/972,364.

Applicant : The Trustees of Columbia University in the City of New York

Serial No.: 15/380,284

Filed : December 15, 2016

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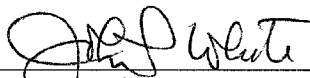
This Information Disclosure Statement is being submitted before the mailing of the first Office Action on the merits. In accordance with 37 C.F.R. §1.97(b) no fee is required.

The Examiner is respectfully requested to make the above-listed references of record in the subject application by initialing and dating the attached Substitute PTO-1449 Forms, and returning copies of the initialed and dated PTO-1449 Forms to applicant's undersigned attorney.

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicant's undersigned attorney invites the Examiner to telephone him at the number provided below.

No fee is deemed necessary in connection with the filing of this Information Disclosure Statement. However, if any fee is required, authorization is hereby given to charge the amount of such fee to Deposit Account No. 03-3125.

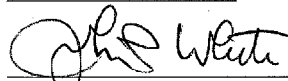
Respectfully submitted,



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New York, New York 10112  
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**Certificate of Transmission**

I hereby certify that this correspondence is being transmitted via the Electronic Filing System (EFS) to the U.S. Patent and Trademark Office on December 19, 2016.



John P. White  
Reg. No. 28,678

/LAYLA D BERRY/

02/07/2017



**Form PTO-1449 (Substitute) U.S. Department of Commerce  
Patent and Trademark Office**

Application Number	15/380,284
Filing Date	December 15, 2016
First Named Inventor	Jingyue Ju
Art Unit	1637
Examiner Name	Jezia Riley
Attorney Docket No.	62239-BZA9/JPW/AC

**INFORMATION DISCLOSURE STATEMENT  
(Use several sheets if necessary)**
**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	13	7,713,698	05-11-2010	Ju et al.
	16	5,242,796	09-07-1993	Prober et al.
	17	5,547,839	08-20-1996	Dower et al.
	20	7,270,951	09-18-2007	Stemple et al.
	23	5,047,519	09-10-1991	Hobbs, Jr. et al.
	24	4,804,748	02-14-1989	Seela
	25	5,844,106	12-01-1998	Seela et al.
	27	7,037,687	05-02-2006	Williams et al.
	28	6,255,083	07-03-2001	Williams
	29	6,001,566	12-14-1999	Canard et al.
	35	4,772,691	09-20-1988	Herman
	38	5,449,767	09-12-1995	Ward et al.
	39	5,948,648	09-07-1999	Khan et al.
	50	5,151,507	09-29-1992	Hobbs, Jr. et al.
	51	7,078,499	07-18-2006	Odedra et al.
	59	5,383,858	01-24-1995	Reilly et al.
	61	8,088,575	01-03-2012	Ju et al.
	63	7,790,869	09-07-2010	Ju et al.

**UNPUBLISHED U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Filing Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	21	09/266,187	03-10-1999	Stemple et al.

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code*Number*Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T <sup>6</sup>
	14	WO 1991/06678	05-16-1991	SRI INTERNATIONAL	
	18	WO 1996/27025	09-06-1996	Rabani	
	19	WO 2000/53805	09-14-2000	ASM SCIENTIFIC, INC.	
	22	WO 1998/33939	08-06-1998	HITACHI, LTD.	
	26	WO 1989/11548	11-30-1989	CETUS CORPORATION	
	30	WO 1993/21340	10-28-1993	MEDICAL RESEARCH COUNCIL	
	37	WO 1999/49082	09-30-1999	Invitrogen Corporation	
	42	GB 2001 0029012	12-04-2001	Balasubramanian et al.	
	52	GB 2000 0013276	06-01-2000	Odedra et al.	

**EXAMINER  
SIGNATURE**
**DATE CONSIDERED**

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

Applicant: The Trustees of Columbia University in the City of New York  
Serial No.: 15/380,284

Filed: December 15, 2016

Seventh SIDS Exhibit A  
Page 11 of 253

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
	1	September 16, 2012 Petition for Inter Partes Review of U.S. Patent No. 7,713,698, issued May 11, 2010	
	2	September 16, 2012 Motion to Waive Page Limit and Proposed Petition in connection with Petition for Inter Partes Review of U.S. Patent No. 7,713,698, issued May 11, 2010	
	3	December 20, 2012 Preliminary Response under 37 C.F.R. 42.107 in connection with IPR2012-00006	
	4	March 12, 2013 Decision on Petition for Inter Partes Review in connection with IPR2012-00006	
	5	March 26, 2013 Request for Reconsideration in connection with IPR2012-00006	
	6	December 20, 2012 Preliminary Response under 37 C.F.R. 42.107 in connection with IPR2012-00006	
	7	March 12, 2013 Decision on Petition for Inter Partes Review in connection with IPR2012-00006	
	8	March 26, 2013 Request for Reconsideration in connection with IPR2012-00006	
	9	April 26, 2013 Opposition to Request for Reconsideration (Rehearing) Under 37 C.F.R. 42.71.(C) in connection with IPR2012-00006	
	10	September 27, 2013 Petitioner Opposition to Motion to Amend in connection with IPR2012-00006	
	11	September 27, 2013 Petitioner Reply to Response to Petition in connection with IPR2012-00006	
	12	November 18, 2013 Substitute Patent Owner Reply on Motion to Amend in connection with IPR2012-00006	
	15	Exhibit 1003, filed September 16, 2012 in connection with IPR2012-00006: Prober et al. (1987), "A System for Rapid DNA Sequencing with Fluorescent Chain-Terminating Dideoxynucleotides", Science Vol. 238, October 16, 1987, pages 336-341	
	31	Exhibit 1021, filed September 16, 2012 in connection with IPR2012-00006: September 15, 2012 Declaration of George Weinstock Under Rule 37 C.F.R. §1.132	
	32	Exhibit 1022, filed September 16, 2012 in connection with IPR2012-00006: Excerpts of File History of U.S. Patent No. 7,713,698	

<b>EXAMINER SIGNATURE</b>	<b>DATE CONSIDERED</b>
<p><small>*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</small></p>	

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce</b> <b>Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
	33	Exhibit 1025, filed April 30, 2013 in connection with IPR2012-00006: Columbia's Amended Complaint from The Trustees of Columbia University in the City of New York v. Illumina, Inc., D. Del C.A. No. 12-376 (GMS), filed April 11, 2012	
	34	Exhibit 1026, filed April 30, 2013 in connection with IPR2012-00006: Illumina's Answer to Amended Complaint from The Trustees of Columbia University in the City of New York v. Illumina, Inc., D. Del C.A. No. 12-376 (GMS), filed December 21, 2012	
	36	Exhibit 1030, filed June 18, 2013 in connection with IPR2012-00006: Rosenblum et al., "New Dye-Labeled Terminators for Improved DNA Sequencing Patterns," Nucleic Acid Research, 1997, Vol. 25, No. 22, pages 4500-4504	
	40	Exhibit 1034, filed June 18, 2013 in connection with IPR2012-00006: June 8, 2013 Videotaped Deposition Transcript of George M. Weinstock, Ph.D.	
	41	Exhibit 1036, filed September 27, 2013 in connection with IPR2012-00006: "Next Generation Genomics: World Map of High-throughput Sequencers," September 1, 2013	
	43	Exhibit 1039, filed September 27, 2013 in connection with IPR2012-00006: Videotaped Deposition Transcript of Dr. Xiaohai Liu, March 20, 2013	
	44	Exhibit 1040, filed September 27, 2013 in connection with IPR2012-00006: Excerpt from videotaped Deposition Transcript of George M. Weinstock, Ph.D., June 8, 2013	
	45	Exhibit 1041, filed September 27, 2013 in connection with IPR2012-00006: Seela et al., "Oligonucleotide Duplex Stability Controlled by the 7-Substituents of 7-Deazaguanine Bases," Bioorganic & Medical Chemistry Letters, Vol. 5, No. 24, pages 3049-3052, 1995	
	46	Exhibit 1042, filed September 27, 2013 in connection with IPR2012-00006: Ramzaeva et al., "123. 7-Deazaguanine DNA: Oligonucleotides with Hydrophobic or Cationic Side Chains," Helvetica Chimica Acta, Vol. 80, pages 1809-1822, 1997	

**EXAMINER  
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\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce</b>		<b>Application Number</b>	15/380,284
<b>Patent and Trademark Office</b>		<b>Filing Date</b>	December 15, 2016
<b>INFORMATION DISCLOSURE STATEMENT</b> (Use several sheets if necessary)		<b>First Named Inventor</b>	Jingyue Ju
		<b>Art Unit</b>	1637
		<b>Examiner Name</b>	Jezia Riley
		<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

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	47	Exhibit 1043, filed September 27, 2013 in connection with IPR2012-00006: Ramzaeva et al., "88. 7-Substituted 7-Deaza-2'-deoxyguanosines: Regioselective Halogenation of Pyrrolo[2,3-d]pyrimidine Nucleosides," Helvetica Chimica Acta, Vol. 78, pages 1083-1090, 1995	
	48	Exhibit 1044, filed September 27, 2013 in connection with IPR2012-00006: Seela et al., "Duplex Stability of Oligonucleotides Containing 7-Substituted 7-Deaza- and 8-Aza-7-Deazapurine Nucleosides," Nucleosides & Nucleotides, 16(7-9), pages 963-966, 1997	
	49	Exhibit 1045, filed September 27, 2013 in connection with IPR2012-00006: Burgess et al., "Syntheses of Nucleosides Designed for Combinatorial DNA Sequencing," Chemistry - A European Journal, Vol. 5, No. 3, pages 951-960, 1999	
	53	Exhibit 1049, filed September 27, 2013 in connection with IPR2012-00006: January 28, 2013 Declaration of Dr. Bruce P. Branchaud in Support of Petition for Inter Partes Review of U.S. Patent No. 7,057,026	
	54	Exhibit 1050, filed September 27, 2013 in connection with IPR2012-00006: Lee et al., "DNA sequencing with dye-labeled terminators and T7 DNA polymerase: effect of dyes and dNTPs on incorporation of dye-terminators and probability analysis of termination fragments," Nucleic Acids Research, Vol. 20, No. 10, pages 2471-2483, 1992	
	55	Exhibit 1051, filed September 27, 2013 in connection with IPR2012-00006: <a href="http://www.answers.com/topic/incubate">http://www.answers.com/topic/incubate</a> , Accessed September 27, 2013	
	56	Exhibit 1052, filed September 27, 2013 in connection with IPR2012-00006: <a href="http://en.wikipedia.org/wiki/Fluorenylmethyloxycarbonyl_chloride">http://en.wikipedia.org/wiki/Fluorenylmethyloxycarbonyl_chloride</a> , Accessed September 27, 2013	
	57	Exhibit 1053, filed September 27, 2013 in connection with IPR2012-00006: September 27, 2013 Declaration of Kevin Burgess	

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<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	58	Exhibit 1054, filed September 27, 2013 in connection with IPR2012-00006: Fuji, et al., "An Improved Method for Methoxymethylation of Alcohols under Mild Acidic Conditions," Synthesis - The Journal of Synthetic Organic Chemistry, pages 276-277, April 1975	
	60	Exhibit 2006, filed April 26, 2013 in connection with IPR2012-00006: Dower patent with highlights	
	62	Exhibit 2011, filed June 24, 2013 in connection with IPR2012-00006: U.S. Pat. No. 7,713,698 (filed Aug. 20, 2007, issued May 11, 2010) (Exhibit 1001 in IPR2012-00006)	
	63	Exhibit 2012, filed June 24, 2013 in connection with IPR2012-00006: U.S. Pat. No. 7,790,869 (filed June 5, 2007, issued September 7, 2010) (Exhibit 1001 in IPR2012-00007)	
	64	Exhibit 2013, filed June 24, 2013 in connection with IPR2012-00006: October 2, 2012 Declaration of George Weinstock Under 37 CFR 1.132 (Exhibit 1021 in IPR2013-00011)	
	65	Exhibit 2014, filed June 24, 2013 in connection with IPR2012-00006: Petition for Inter Partes Review of U.S. Pat. No. 8,088,575 (Paper 4 in IPR2013-00011)	
	66	Exhibit 2015, filed June 24, 2013 in connection with IPR2012-00006: Metzker et al. (1994) Termination of DNA synthesis by novel 3'-modified-deoxyribonucleoside 5'-triphosphates. Nucleic Acids Res. 22:4259-4267	
	67	Exhibit 2016, filed June 24, 2013 in connection with IPR2012-00006: Wu et al. (2007) Termination of DNA synthesis by N6-alkylated, not 3'-O-alkylated, photocleavable 2'-deoxyadenosine triphosphates. Nucleic Acids Res. 35:6339-6349	
	68	Exhibit 2017, filed June 24, 2013 in connection with IPR2012-00006: September 15, 2012 Declaration of George Weinstock Under 37 CFR 1.132 (Exhibit 1021 in IPR2012-00007)	
	69	Exhibit 2018, filed June 24, 2013 in connection with IPR2012-00006: September 15, 2012 Declaration of George Weinstock Under 37 CFR 1.132 (Exhibit 1021 in IPR2012-00006)	

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<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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Examiner Initials <sup>a</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
	70	Exhibit 2019, filed June 24, 2013 in connection with IPR2012-00006: Definition of "DNA microarray." <a href="http://en.wikipedia.org/wiki/DNA_microarray">http://en.wikipedia.org/wiki/DNA_microarray</a>	
	71	Exhibit 2020, filed June 24, 2013 in connection with IPR2012-00006: Brettin et al. (2005) Expression capable library for studies of Neisseria gonorrhoeae, version 1.0 BMC Microbiology. 5:50	
	72	Exhibit 2021, filed June 24, 2013 in connection with IPR2012-00006: George M. Weinstock, Handbook of Molecular Microbial Ecology, Volume 1-Chapter 18: The Impact of Next-Generation Sequencing Technologies on Metagenomics 141-147 Frans J. de Bruijn ed., John Wiley & Sons, Inc. (2011)	
	73	Exhibit 2022, filed June 24, 2013 in connection with IPR2012-00006: September 16, 2012 Petition for Inter Partes Review of U.S. Pat. No. 7,713,698 (Paper 3 in IPR2012-00006)	
	74	Exhibit 2023, filed June 24, 2013 in connection with IPR2012-00006: September 16, 2012 Petition for Inter Partes Review of U.S. Pat. No. 7,790,869 (Paper 5 in IPR2012-00007)	
	75	Exhibit 2024, filed June 24, 2013 in connection with IPR2012-00006: Maxam and Gilbert (1977) A new method for sequencing DNA, Proc. Natl. Acad. Sci. USA. 74:560-564	

EXAMINER SIGNATURE /LAYLA D BERRY/

DATE CONSIDERED 02/07/2017

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

EIGHTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

The items listed below are documents filed in connection with the *Inter Partes Review* of U.S. Patent No. 7,713,698, IPR2012-00006. U.S. Patent No. 7,713,698 has a common licensee and common inventors with the subject application.

1. Exhibit 2025, filed June 24, 2013 in connection with IPR2012-00006: Sanger et al. (1977) DNA sequencing with chain-terminating inhibitors, Proc. Natl. Acad. Sci. USA. 74:5463-5467;
2. Exhibit 2026, filed June 24, 2013 in connection with IPR2012-00006: Pennisi (2000) DOE Team Sequences Three Chromosomes, Science. 288:417-419;
3. Exhibit 2027, filed June 24, 2013 in connection with IPR2012-00006: Welch and Burgess (1999) Synthesis of

Applicant : The Trustees of Columbia University in the City of New York

Serial No.: 15/380,284

Filed : December 15, 2016

Page 2 of 9 of Eighth Supplemental Information Disclosure Statement

Fluorescent, Photolabile 3'-O-Protected nucleoside Triphosphates for the Base Addition Sequencing Scheme, nucleosides & Nucleotides. 18:197-201;

4. Exhibit 2028, filed June 24, 2013 in connection with IPR2012-00006: Hyman (1998) A New Method of Sequencing DNA, Analytical Biochemistry 174:423-436;
5. Exhibit 2029, filed June 24, 2013 in connection with IPR2012-00006: U.S. Pat. No. 5,302,509 (filed Feb. 27, 1991, issued April 12, 1994);
6. Exhibit 2030, filed June 24, 2013 in connection with IPR2012-00006: Canard and Sarfati (1994) DNA polymerase fluorescent substrates with reversible 3'-tags, Gene. 148:1-6;
7. Exhibit 2031, filed June 24, 2013 in connection with IPR2012-00006: U.S. Pat. No. 8,399,188 (filed Sept. 4, 2007, issued March 19, 2013);
8. Exhibit 2032, filed June 24, 2013 in connection with IPR2012-00006: Sarfati et al. (1987) Synthesis of Fluorescent or Biotinylated Nucleoside Compounds, Tetrahedron Letters. 43:3491-3497;
9. Exhibit 2033, filed August 30, 2013 in connection with IPR2012-00006: June 25, 2013 Substitute Declaration of Dr. George L. Trainor [redacted];
10. Exhibit 2034, filed June 25, 2013 in connection with IPR2012-00006: Jingyue Ju et. al. (2006) Four-color DNA sequencing by synthesis using cleavable fluorescent nucleotide reversible terminators, Proceedings of the National Academy of Sciences. 103: 19635-19640;



Applicant : The Trustees of Columbia University in the City of New York

Serial No.: 15/380,284

Filed : December 15, 2016

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11. Exhibit 2035, filed June 25, 2013 in connection with IPR2012-00006: Batista et al. (2008) PRG-1 and 21U-RNAs Interact to Form the piRNA Complex Required for Fertility in C. elegans. Molecular Cell 31:1-12;
12. Exhibit 2036, filed June 25, 2013 in connection with IPR2012-00006: Form 7 Review Context and Analysis, Biomedical Engineering and Research to Aid Persons with Disabilities Programs December 19-20, 2000 Panel Review, Fluorescence Imaging Chip System for Massive Parallel DNA Sequencing. Proposal No. BES-0097793;
13. Exhibit 2037, filed June 25, 2013 in connection with IPR2012-00006: October 1, 2006 Request for opinion on manuscript by J. Ju et. al., Proceedings of National Academy of Sciences, U.S.A.;
14. Exhibit 2038, filed June 25, 2013 in connection with IPR2012-00006: Correspondence between George Rupp, Chancellor, Columbia University and Richard T. Schlossberg, President, The David and Lucile Packard Foundation (2001);
15. Exhibit 2039, filed June 25, 2013 in connection with IPR2012-00006: The David and Lucile Packard Foundation, Packard Fellowships for Science and Engineering, <http://www.packard.org/what-wefund/conservation-and-science/packard-fellowships-for-science-andengineering/> (last visited June 25, 2013);
16. Exhibit 2040, filed June 25, 2013 in connection with IPR2012-00006: "Chemistry for Next-Generation Sequencing." [http://www.illumina.com/technology/sequencing\\_technology.ilmn](http://www.illumina.com/technology/sequencing_technology.ilmn);
17. Exhibit 2041, filed June 25, 2013 in connection with

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Serial No.: 15/380,284

Filed : December 15, 2016

Page 4 of 9 of Eighth Supplemental Information Disclosure Statement

IPR2012-00006: Chiang et al. (2010) Mammalian microRNAs: experimental evaluation of novel and previously annotated genes, Genes & Dev. 24:992, 993;

18. Exhibit 2042, filed June 25, 2013 in connection with IPR2012-00006: Seo et al. (2004) Photocleavable fluorescent nucleotides for DNA sequencing on a chip constructed by site-specific coupling chemistry, Proc. Natl Acad. Sci. 101(15):5488-5493;
19. Exhibit 2043, filed June 25, 2013 in connection with IPR2012-00006: Curriculum vitae of Mr. Raymond S. Sims;
20. Exhibit 2044, filed June 25, 2013 in connection with IPR2012-00006: Prior Testimony of Mr. Raymond S. Sims;
21. Exhibit 2045, filed June 25, 2013 in connection with IPR2012-00006: Documents reviewed by Mr. Raymond S. Sims in this Proceeding;
22. Exhibit 2052, filed June 25, 2013 in connection with IPR2012-00006: Gary Schroth Proof of Chiang Paper;
23. Exhibit 2074, filed June 25, 2013 in connection with IPR2012-00006: Information about Dr. Ju's intellectual property sent to Illumina;
24. Exhibit 2090, filed June 26, 2013 in connection with IPR2012-00006: IPR Default Protective Order;
25. Exhibit 2091, filed June 26, 2013 in connection with IPR2012-00006: Declaration of Raymond S. Sims;
26. Exhibit 2092, filed October 10, 2013 in connection with IPR2012-00006: Rough Transcript of the September 4, 2013 deposition of Dr. George L. Trainor;

Applicant : The Trustees of Columbia University in the City of New York

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Filed : December 15, 2016

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27. Exhibit 2093, filed October 1, 2013 in connection with IPR2012-00006: Excerpt from Protective Groups in Organic Synthesis, 3rd Ed. (Theodora W. Greene and Peter G.M. Wuts ed., John Wiley & Sons, Inc. 1999);
28. Exhibit 2094, filed October 1, 2013 in connection with IPR2012-00006: Final transcript of the September 4-6, 2013 deposition of Dr. George L. Trainor;
29. Exhibit 2095, filed October 1, 2013 in connection with IPR2012-00006: Final transcript of the September 3, 2013 deposition of Raymond S. Sims;
30. November 12, 2013 Petitioner Motion to Exclude Evidence in connection with IPR2012-00006;
31. Exhibit 1056, filed November 19, 2013 in connection with IPR2012-00006: Videotaped Deposition Transcript of Kevin Burgess, Ph.D., October 28, 2013, signed with errata;
32. November 12, 2013 Patent Owner Motion for Observations on the Cross-Examination Testimony of Kevin Burgess, Ph.D. in connection with IPR2012-00006;
33. November 12, 2013 Patent Owner Motion to Exclude Evidence in connection with IPR2012-00006;
34. Exhibit 2099, filed November 12, 2013 in connection with IPR2012-00006: Welch, M., et al (2005) Corrigenda to Syntheses of Nucleosides Designed for Combinatorial DNA Sequencing Chem. Eur.J., 1999, 951-960. Published in Chem. Eur. J, 2005, 11, 7136-7145;
35. Exhibit 2100, filed November 12, 2013 in connection with

Applicant : The Trustees of Columbia University in the City of New York

Serial No.: 15/380,284

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IPR2012-00006: Welch, M (1999) "Base Additions Sequencing Scheme (BASS) and Studies Toward New Sequencing Methodologies." PhD. Dissertation, Texas A&M University;

36. Exhibit 2101, filed November 12, 2013 in connection with IPR2012-00006: Lu and Burgess (2006) "A Diversity Oriented Synthesis of 3'-O-modified nucleoside triphosphates for DNA 'Sequencing by Synthesis'." Bioorganic & Medicinal Chemistry Letters, 16, 3902-3905;
37. Exhibit 2102, filed November 12, 2013 in connection with IPR2012-00006: Advanced Sequencing Technology Awards 2004. <http://www.genome.gov/12513162> (accessed 10/14/2013);
38. Exhibit 2103, filed November 12, 2013 in connection with IPR2012-00006: Welch and Burgess (2006) Erratum to Synthesis of Fluorescent, Photolabile 3'-O-Protected Nucleoside Triphosphates for the Base Addition Sequencing Scheme, Nucleosides & Nucleotides, 18:197-201. Published in Nucleosides, Nucleotides and Nucleic Acids, 25:1, 119;
39. November 26, 2013 Petitioner Response to Motion for Observations in connection with IPR2012-00006;
40. November 26, 2013 Patent Owner Opposition to Petitioner's Motion to Exclude in connection with IPR2012-00006;
41. November 26, 2013 Petitioner Opposition to Motion to Exclude in connection with IPR2012-00006;
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Serial No.: 15/380,284

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Page 7 of 9 of Eighth Supplemental Information Disclosure Statement

00006;

43. December 3, 2013 Patent Owner Reply on Motion to Exclude in connection with IPR2012-00006;
44. Exhibit 2105, filed December 15, 2013 in connection with IPR2012-00006: Columbia's Demonstratives Under 42.70(b) for Dec. 17, 2013 Oral Hearing in connection with IPR2012-00006, IPR2012-00007, and IPR2013-00011;
45. Exhibit 1057, filed December 16, 2013 in connection with IPR2012-00006: Illumina's Invalidity Demonstratives for Final Hearing December 17, 2013 in connection with IPR2012-00006, IPR2012-00007, and IPR2013-00011;
46. February 10, 2014 Record of December 17, 2013 Oral Hearing in connection with IPR2012-00006, IPR2012-00007, and IPR2013-00011; and
47. March 6, 2014 Final Written Decision in connection with IPR2012-00006.

The above-identified application claims benefit under 35 U.S.C. §120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now pending, which is a continuation of U.S. Serial No. 13/959,660, filed August 5, 2013, now U.S. Patent No. 9,133,511, issued September 15, 2015, which is a continuation of U.S. Serial No. 13/672,437, filed November 8, 2012, now abandoned, which is a continuation of U.S. Serial No. 13/339,089, filed December 28, 2011, now abandoned, which is a continuation of U.S. Serial No. 12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575, issued January 3, 2012, which is a continuation of U.S. Serial

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No. 11/810,509, filed June 5, 2007, now U.S. Patent No. 7,790,869, issued September 7, 2010, which is a continuation of U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S. Patent No. 7,345,159, issued March 18, 2008, which is a divisional of U.S. Serial No. 09/972,364, filed October 5, 2001, now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming the benefit of U.S. Provisional Application No. 60/300,894, filed June 26, 2001, and a continuation-in-part of U.S. Serial No. 09/684,670, filed October 6, 2000, now abandoned.

In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents listed above as items 1-47 need not be provided because such copies have previously been submitted in Information Disclosure Statements, or cited by the U.S. Patent Office, in connection with one or more of U.S. Serial No. 14/670,748, U.S. Serial No. 13/959,660, U.S. Serial No. 13/672,437, U.S. Serial No. 13/339,089, U.S. Serial No. 12/804,284, U.S. Serial No. 11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No. 09/972,364.

This Information Disclosure Statement is being submitted before the mailing of the first Office Action on the merits. In accordance with 37 C.F.R. §1.97(b) no fee is required.

The Examiner is respectfully requested to make the above-listed references of record in the subject application by initialing and dating the attached Substitute PTO-1449 Forms, and returning copies of the initialed and dated PTO-1449 Forms to applicant's undersigned attorney.

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicant's undersigned

Applicant : The Trustees of Columbia University in the City of New  
York

Serial No.: 15/380,284

Filed : December 15, 2016

Page 9 of 9 of Eighth Supplemental Information Disclosure Statement

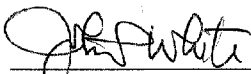
attorney invites the Examiner to telephone him at the number  
provided below.

No fee is deemed necessary in connection with the filing of this  
Information Disclosure Statement. However, if any fee is  
required, authorization is hereby given to charge the amount of  
such fee to Deposit Account No. 03-3125.

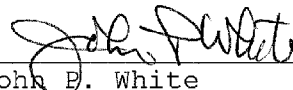
Respectfully submitted,

**Certificate of Transmission**

I hereby certify that this  
correspondence is being  
transmitted via the Electronic  
Filing System (EFS) to the U.S.  
Patent and Trademark Office on  
December 19, 2016.



John P. White  
Reg. No. 28,678



John P. White  
Registration No. 28,678  
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20<sup>th</sup> Floor  
New York, New York 10112  
(212) 278-0400

/LAYLA D BERRY/

02/07/2017  
Page 131 of 233

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	5	5,302,509	04-12-1994	Cheeseman
	7	8,399,188	09-04-2007	Zhao et al.

### FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code*Number*Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T <sup>6</sup>

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
	1	Exhibit 2025, filed June 24, 2013 in connection with IPR2012-00006: Sanger et al. (1977) DNA sequencing with chain-terminating inhibitors, Proc. Natl. Acad. Sci. USA. 74:5463-5467	
	2	Exhibit 2026, filed June 24, 2013 in connection with IPR2012-00006: Pennisi (2000) DOE Team Sequences Three Chromosomes, Science. 288:417-419	
	3	Exhibit 2027, filed June 24, 2013 in connection with IPR2012-00006: Welch and Burgess (1999) Synthesis of Fluorescent, Photolabile 3'-O-Protected nucleoside Triphosphates for the Base Addition Sequencing Scheme, nucleosides & Nucleotides. 18:197-201	
	4	Exhibit 2028, filed June 24, 2013 in connection with IPR2012-00006: Hyman (1998) A New Method of Sequencing DNA, Analytical Biochemistry 174:423-436	
	6	Exhibit 2030, filed June 24, 2013 in connection with IPR2012-00006: Canard and Sarfati (1994) DNA polymerase fluorescent substrates with reversible 3'-tags, Gene. 1481-6	
	8	Exhibit 2032, filed June 24, 2013 in connection with IPR2012-00006: Sarfati et al. (1987) Synthesis of Fluorescent or Biotinylated Nucleoside Compounds, Tetrahedron Letters. 43:3491-3497	

**EXAMINER  
SIGNATURE**
**DATE CONSIDERED**

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup>Applicant is to place a check mark here if English Language Translation is attached.

Applicant: The Trustees of Columbia  
University in the City of New York  
Serial No.: 15/380,284  
Filed: December 15, 2016  
Eighth SIDS Exhibit A



<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	9	Exhibit 2033, filed August 30, 2013 in connection with IPR2012-00006: June 25, 2013 Substitute Declaration of Dr. George L. Trainor [redacted]	
	10	Exhibit 2034, filed June 25, 2013 in connection with IPR2012-00006: Jingyue Ju et. al. (2006) Four-color DNA sequencing by synthesis using cleavable fluorescent nucleotide reversible terminators, Proceedings of the National Academy of Sciences. 103: 19635-19640	
	11	Exhibit 2035, filed June 25, 2013 in connection with IPR2012-00006: Batista et al. (2008) PRG-1 and 21U-RNAs Interact to Form the piRNA Complex Required for Fertility in C. elegans. Molecular Cell 31:1-12	
	12	Exhibit 2036, filed June 25, 2013 in connection with IPR2012-00006: Form 7 Review Context and Analysis, Biomedical Engineering and Research to Aid Persons with Disabilities Programs December 19-20, 2000 Panel Review, Fluorescence Imaging Chip System for Massive Parallel DNA Sequencing. Proposal No. BES-0097793	
	13	Exhibit 2037, filed June 25, 2013 in connection with IPR2012-00006: October 1, 2006 Request for opinion on manuscript by J. Ju et. al., Proceedings of National Academy of Sciences, U.S.A.	
	14	Exhibit 2038, filed June 25, 2013 in connection with IPR2012-00006: Correspondence between George Rupp, Chancellor, Columbia University and Richard T. Schlossberg, President, The David and Lucile Packard Foundation (2001)	
	15	Exhibit 2039, filed June 25, 2013 in connection with IPR2012-00006: The David and Lucile Packard Foundation, Packard Fellowships for Science and Engineering, <a href="http://www.packard.org/what-wefund/conservation-and-science/packard-fellowships-for-science-andengineering/">http://www.packard.org/what-wefund/conservation-and-science/packard-fellowships-for-science-andengineering/</a> (last visited June 25, 2013)	
	16	Exhibit 2040, filed June 25, 2013 in connection with IPR2012-00006: "Chemistry for Next-Generation Sequencing." <a href="http://www.illumina.com/technology/sequencing_technology.illmn">http://www.illumina.com/technology/sequencing_technology.illmn</a>	

EXAMINER  
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	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
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	17	Exhibit 2041, filed June 25, 2013 in connection with IPR2012-00006: Chiang et al. (2010) Mammalian microRNAs: experimental evaluation of novel and previously annotated genes, Genes & Dev. 24:992, 993	
	18	Exhibit 2042, filed June 25, 2013 in connection with IPR2012-00006: Seo et al. (2004) Photocleavable fluorescent nucleotides for DNA sequencing on a chip constructed by site-specific coupling chemistry, Proc. Natl Acad. Sci. 101(15):5488-5493	
	19	Exhibit 2043, filed June 25, 2013 in connection with IPR2012-00006: Curriculum vitae of Mr. Raymond S. Sims	
	20	Exhibit 2044, filed June 25, 2013 in connection with IPR2012-00006: Prior Testimony of Mr. Raymond S. Sims	
	21	Exhibit 2045, filed June 25, 2013 in connection with IPR2012-00006: Documents reviewed by Mr. Raymond S. Sims in this Proceeding	
	22	Exhibit 2052, filed June 25, 2013 in connection with IPR2012-00006: Gary Schroth Proof of Chiang Paper	
	23	Exhibit 2074, filed June 25, 2013 in connection with IPR2012-00006: Information about Dr. Ju's intellectual property sent to Illumina	
	24	Exhibit 2090, filed June 26, 2013 in connection with IPR2012-00006: IPR Default Protective Order	
	25	Exhibit 2091, filed June 26, 2013 in connection with IPR2012-00006: Declaration of Raymond S. Sims	
	26	Exhibit 2092, filed October 10, 2013 in connection with IPR2012-00006: Rough Transcript of the September 4, 2013 deposition of Dr. George L. Trainor	
	27	Exhibit 2093, filed October 1, 2013 in connection with IPR2012-00006: Excerpt from Protective Groups in Organic Synthesis, 3rd Ed. (Theodora W. Greene and Peter G.M. Wuts ed., John Wiley & Sons, Inc. 1999)	
	28	Exhibit 2094, filed October 1, 2013 in connection with IPR2012-00006: Final transcript of the September 4-6, 2013 deposition of Dr. George L. Trainor	

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SIGNATURE**
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	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
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	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	29	Exhibit 2095, filed October 1, 2013 in connection with IPR2012-00006: Final transcript of the September 3, 2013 deposition of Raymond S. Sims	
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	37	Exhibit 2102, filed November 12, 2013 in connection with IPR2012-00006: Advanced Sequencing Technology Awards 2004. <a href="http://www.genome.gov/12513162">http://www.genome.gov/12513162</a> (accessed 10/14/2013)	
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	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	44	Exhibit 2105, filed December 15, 2013 in connection with IPR2012-00006: Columbia's Demonstratives Under 42.70(b) for Dec. 17, 2013 Oral Hearing in connection with IPR2012-00006, IPR2012-00007, and IPR2013-00011	
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	46	February 10, 2014 Record of December 17, 2013 Oral Hearing in connection with IPR2012-00006, IPR2012-00007, and IPR2013-00011	
	47	March 6, 2014 Final Written Decision in connection with IPR2012-00006	

<b>EXAMINER SIGNATURE</b> /LAYLA D BERRY/	<b>DATE CONSIDERED</b> 02/07/2017
<small>*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</small>	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

NINTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

The items listed below are documents filed in connection with the *Inter Partes* Review of U.S. Patent No. 7,790,869, IPR2012-00007. U.S. Patent No. 7,790,869 has a common licensee and common inventors with the subject application.

1. September 16, 2012 Petition for Inter Partes Review of U.S. Patent No. 7,790,869;
2. September 17, 2012 Motion to Waive Page Limit and Proposed Petition in connection with Petition for Inter Partes Review of U.S. Patent No. 7,790,869;
3. December 21, 2012 Preliminary Response under 37 C.F.R. 42.107 in connection with IPR2012-00007;
4. March 12, 2013 Decision on Petition for Inter Partes Review

Applicant : The Trustees of Columbia University in the City of New  
York

Serial No.: 15/380,284

Filed : December 15, 2016

Page 2 of 6 of Ninth Supplemental Information Disclosure Statement

in connection with IPR2012-00007;

5. March 26, 2013 Request for Reconsideration in connection with IPR2012-00007;
6. March 26, 2013 Request for Rehearing under 37 C.F.R. 42.71 of Decision to Institute Inter Partes Review in connection with IPR2012-00007;
7. April 26, 2013 Opposition to Request for Reconsideration (Rehearing) Under 37 C.F.R. 42.71.(C) in connection with IPR2012-00007;
8. May 10, 2013 Decision on Request for Rehearing in connection with IPR2012-00007;
9. August 30, 2013 Substitute Patent Owner Response Under 37 C.F.R. 42.120 in connection with IPR2012-00007;
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14. Exhibit 1001, filed September 16, 2012 in connection with IPR2012-00007: U.S. Patent No. 7,790,869 issued September 7, 2010 to Ju et al.;
15. Exhibit 1022, filed September 16, 2012 in connection with IPR2012-00007: Excerpts of File History of U.S. Patent No.

Applicant : The Trustees of Columbia University in the City of New  
York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 3 of 6 of Ninth Supplemental Information Disclosure Statement

7,790,869;

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18. Exhibit 2033, filed August 30, 2013 in connection with IPR2012-00007: June 25, 2013 Substitute Declaration of Dr. George L. Trainor [redacted];
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Applicant : The Trustees of Columbia University in the City of New  
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11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No.  
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the mailing of the first Office Action on the merits. In  
accordance with 37 C.F.R. §1.97(b) no fee is required.

The Examiner is respectfully requested to make the above-listed  
references of record in the subject application by initialing and  
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copies of the initialed and dated PTO-1449 Forms to applicant's  
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prosecution of the subject application, applicant's undersigned  
attorney invites the Examiner to telephone him at the number  
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Applicant : The Trustees of Columbia University in the City of New York

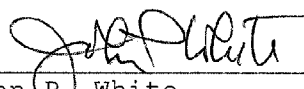
Serial No.: 15/380,284

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Page 6 of 6 of Ninth Supplemental Information Disclosure Statement

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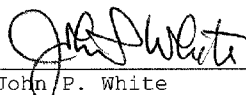
Respectfully submitted,



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**Certificate of Transmission**

I hereby certify that this correspondence is being transmitted via the Electronic Filing System (EFS) to the U.S. Patent and Trademark Office on December 19, 2016.



John P. White  
Reg. No. 28,678

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JFW/AC

### U.S. PATENT DOCUMENTS

Examiner Initials <sup>*</sup>	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	14	7,790,869	09-07-2010	Ju et al.

### FOREIGN PATENT DOCUMENTS

Examiner Initials <sup>*</sup>	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T <sup>6</sup>

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials <sup>*</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
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	11	September 27, 2013 Petitioner Opposition to Motion to Amend in connection with IPR2012-00007	

<b>EXAMINER SIGNATURE</b>	<b>DATE CONSIDERED</b>
---------------------------	------------------------

<sup>\*</sup>EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup>Applicant is to place a check mark here if English Language Translation is attached.

Applicant: The Trustees of Columbia  
University in the City of New York  
Serial No.: 15/380,284  
Filed: December 15, 2016  
Ninth SIDS Exhibit A

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> (Use several sheets if necessary)	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
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	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	27	March 6, 2014 Final Written Decision in connection with IPR2012-00007	

<b>EXAMINER SIGNATURE</b>	/LAYLA D BERRY/	<b>DATE CONSIDERED</b>	02/07/2017
<p>*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</p>			

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

TENTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

The items listed below are documents filed in connection with the *Inter Partes* Review of U.S. Patent No. 8,088,575, IPR2013-00011. U.S. Patent No. 8,088,575 has a common licensee and common inventors with the subject application.

1. October 3, 2012 Petition for Inter Partes Review of U.S. Patent No. 8,088,575;
2. October 3, 2012 Motion to Waive Page Limit and Proposed Petition in connection with Petition for Inter Partes Review of U.S. Patent No. 8,088,575;
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York

Serial No.: 15/380,284

Filed : December 15, 2016

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Weinstock Under Rule 37 C.F.R. §1.132;

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Page 5 of 6 of Tenth Supplemental Information Disclosure Statement

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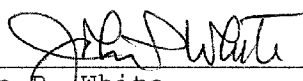
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Page 6 of 6 of Tenth Supplemental Information Disclosure Statement

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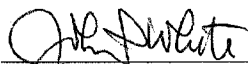
Respectfully submitted,



John P. White  
Registration No. 28,678  
Attorney for Applicant  
Cooper & Dunham LLP  
30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
(212) 278-0400

**Certificate of Transmission**

I hereby certify that this correspondence is being transmitted via the Electronic Filing System (EFS) to the U.S. Patent and Trademark Office on December 19, 2016.



John P. White  
Reg. No. 28,678

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### U.S. PATENT DOCUMENTS

Examiner Initials <sup>6</sup>	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	14	8,088,575	01-03-2012	Ju et al.

### FOREIGN PATENT DOCUMENTS

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<sup>6</sup>EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup>Applicant is to place a check mark here if English Language Translation is attached.

Applicant: The Trustees of Columbia  
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Serial No.: 15/380,284  
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Tenth SIDS Exhibit A

Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office	Application Number	15/380,284	
	Filing Date	December 15, 2016	
	First Named Inventor	Jingyue Ju	
	Art Unit	1637	
	Examiner Name	Jezia Riley	
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	17	Exhibit 1053, filed September 27, 2013 in connection with IPR2013-00011: September 27, 2013 Declaration of Kevin Burgess	
	18	Exhibit 2033, filed August 30, 2013 in connection with IPR2013-00011: June 25, 2013 Substitute Declaration of Dr. George L. Trainor [redacted]	
	19	November 12, 2013 Petitioner Motion to Exclude Evidence in connection with IPR2012-00007	
	20	November 12, 2013 Patent Owner Motion for Observations on the Cross-Examination Testimony of Kevin Burgess, Ph.D. in connection with IPR2012-00007	
	21	November 12, 2013 Patent Owner Motion to Exclude Evidence in connection with IPR2012-00007	
	22	November 26, 2013 Petitioner's Response to Motion for Observations in connection with IPR2013-00011	
	23	November 26, 2013 Patent Owner's Opposition to Petitioner's Motion to Exclude in connection with IPR2013-00011	
	24	November 26, 2013 Petitioner's Opposition to Motion to Exclude in connection with IPR2013-00011	
	25	December 3, 2013 Petitioner Reply to Patent Owner's Opposition to Motion to Exclude in connection with IPR2013-00011	
	26	December 3, 2013 Patent Owner Reply on Motion to Exclude in connection with IPR2013-00011	
	27	March 6, 2014 Final Written Decision in connection with IPR2013-00011	

EXAMINER SIGNATURE	/LAYLA D BERRY/	DATE CONSIDERED	02/07/2017
<p>*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</p>			

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

ELEVENTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

The items listed below are documents filed in connection with the *Inter Partes* Review of U.S. Patent No. 7,057,026, IPR2013-00128, which was petitioned for by the licensee of the subject application.

1. January 29, 2013 Petition for Inter Partes Review of U.S. Patent No. 7,057,026;
2. February 7, 2013 Revised Petition for Inter Partes Review of U.S. Patent No. 7,057,026;
3. May 1, 2013 Preliminary Response under 37 C.F.R. 42.107 in connection with IPR2013-00128;
4. July 29, 2013 Decision on Petition for Inter Partes Review in connection with IPR2013-00128;

Applicant : The Trustees of Columbia University in the City of New  
York

Serial No.: 15/380,284

Filed : December 15, 2016

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5. October 24, 2013 Patent Owner Motion to Amend the Patent in connection with IPR2013-00128;
6. Exhibit 1001, filed January 29, 2013 in connection with IPR2013-00128: U.S. Patent No. 7,057,026 to Colin Barnes et al.;
7. Exhibits 1003-1005, filed January 29, 2013 in connection with IPR2013-00128: PCT International Application No. PCT/JP97/00239, filed January 31, 1997, published on August 6, 1998 as Publication No. WO 98/33939 to HITACHI, LTD. with certified English translation, and Translation Affidavit;
8. Exhibit 1006, filed January 29, 2013 in connection with IPR2013-00128: Beckman Coulter CEQTM 2000 DNA Analysis System User's Guide, June 2000;
9. Exhibit 1007, filed January 29, 2013 in connection with IPR2013-00128: U.S. Patent No. 5,798,210 to Canard et al.;
10. Exhibit 1008, filed January 29, 2013 in connection with IPR2013-00128: U.S. Patent No. 6,664,079 to Ju et al.;
11. Exhibit 1009, filed January 29, 2013 in connection with IPR2013-00128: PCT Publication WO 02/29003, published April 11, 2002 to Ju et al.;
12. Exhibit 1010, filed January 29, 2013 in connection with IPR2013-00128: Kamal, Tetrahedron Letters 40(2):371-372, 1999;
13. Exhibit 1011, filed January 29, 2013 in connection with IPR2013-00128: Jung, J.C.S. Chem. Comm. (7):315-316, 1978;
14. Exhibit 1015, filed January 29, 2013 in connection with IPR2013-00128: January 28, 2013 Declaration of Dr. Bruce

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Serial No.: 15/380,284  
Filed : December 15, 2016  
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Branchaud;

15. Exhibit 1016, filed January 29, 2013 in connection with IPR2013-00128: Excerpts from the '026 Patent File History;
16. Exhibit 1020, filed January 29, 2013 in connection with IPR2013-00128: Transcript of Initial Conference Call Held on August 29, 2013;
17. Exhibit 2001, filed May 1, 2013 in connection with IPR2013-00128: The Trustees of Columbia University in the City of New York v. Illumina, Inc., 1:12-cv-00376-GMS - Columbia's Amended Complaint;
18. Exhibit 2002, filed May 1, 2013 in connection with IPR2013-00128: The Trustees of Columbia University in the City of New York v. Illumina, Inc., 1:12-cv-00376-GMS- Columbia's Amended Answer;
19. Exhibit 2003, filed May 1, 2013 in connection with IPR2013-00128: The Trustees of Columbia University in the City of New York v. Illumina, Inc., 1:12-cv-00376-GMS- IBS's Responses to Illumina's Requests for Admission;
20. Exhibit 2004, filed May 1, 2013 in connection with IPR2013-00128: The Trustees of Columbia University in the City of New York v. Illumina, Inc., 1:12-cv-00376-GMS- Columbia's Response to Illumina's Requests for Admission;
21. Exhibit 2006, filed October 24, 2013 in connection with IPR2013-00128: Green & Wuts, Protective Groups in Organic Synthesis, excerpts from "Protection From the Hydroxyl Group," (1999);
22. Exhibit 2007, filed October 24, 2013 in connection with IPR2013-00128: Katagiri et al., "Selective Protection of the

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Filed : December 15, 2016  
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Primary Hydroxyl Groups of Oxetanocin A," Chem. Pharm. Bull.  
43:884-886 (1995);

23. Exhibit 2008, filed October 24, 2013 in connection with  
IPR2013-00128: U.S. Application No. 10/227131, filed August  
23, 2002;
24. Exhibit 1029, filed January 24, 2014 in connection with  
IPR2013-00128: January 9, 2014 Substitute Declaration of  
Floyd Romesberg, Ph.D.;
25. Exhibit 2012, filed October 24, 2013 in connection with  
IPR2013-00128: 2013-10-03 Deposition Transcript of Bruce  
Branchaud, Ph.D.;
26. Exhibit 2014, filed October 24, 2013 in connection with  
IPR2013-00128: PCT International Publication No. WO 01/92284  
- Odedra, published December 6, 2001;
27. Exhibit 2016, filed October 24, 2013 in connection with  
IPR2013-00128: Ruby, Methods in Enzymology (1990);
28. Exhibit 2024, filed October 24, 2013 in connection with  
IPR2013-00128: PCT International Publication No. WO 89/10977  
- Southern, published November 16, 1989;
29. Exhibit 2025, filed October 24, 2013 in connection with  
IPR2013-00128: U.S. Patent No. 7,057,026 file history;
30. Exhibit 1025, filed January 24, 2014 in connection with  
IPR2013-00128: Substitute Eric Vermaas Declaration, December  
20, 2013;
31. Exhibit 1021, filed December 23, 2013 in connection with  
IPR2013-00128: Excerpts from Protective Groups in Organic  
Synthesis (Theodora W. Greene & Peter G. M. Wuts eds., John



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Filed : December 15, 2016  
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Wiley & Sons, Inc. 3rd ed. 1999) (1991);

32. Exhibit 1022, filed December 23, 2013 in connection with IPR2013-00128: Signed Deposition Transcript of Dr. Bruce Branchaud on October 3, 2013;
33. January 24, 2014 Intelligent Bio-Systems Opposition to Illumina's Motion to Amend in connection with IPR2013-00128;
34. Exhibit 1030, filed January 24, 2014 in connection with IPR2013-00128: Dawson et al., "Affinity Isolation of Transcriptionally Active Murine Erythroleukemia Cell DNA Using a Cleavable Biotinylated Nucleotide Analog" J. of Biol. Chem., 264, 12830-37 (1989);
35. Exhibit 1031, filed January 24, 2014 in connection with IPR2013-00128: PCT Publication WO 00/53812, published September 14, 2000 to Church et al.;
36. Exhibit 1032, filed January 24, 2014 in connection with IPR2013-00128: Mitra et al., "Fluorescent in situ sequencing on polymerase colonies" Analytical Biochem. 320, 55-65 (2003);
37. Exhibit 1033, filed January 24, 2014 in connection with IPR2013-00128: Deposition of Floyd Romesberg, Ph.D., from January 14, 2014;
38. Exhibit 1034, filed January 24, 2014 in connection with IPR2013-00128: 1999/2000 Pierce Chemical Company catalog (1999);
39. Exhibit 1035, filed January 24, 2014 in connection with IPR2013-00128: Second Declaration of Dr. Bruce Branchaud, dated January 23, 2014;

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Filed : December 15, 2016

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40. Exhibit 1039, filed January 24, 2014 in connection with IPR2013-00128: Excerpts from the file history of European Patent Application No: 02781434.2;
41. Exhibit 1041, filed January 24, 2014 in connection with IPR2013-00128: Lukesh et al., "A Potent, Versatile Disulfide-Reducing Agent from Aspartic Acid" J. Am. Chem. Soc., 134:4057-59 (2012);
42. Exhibit 1042, filed January 24, 2014 in connection with IPR2013-00128: Klausner, "DuPont's DNA Sequencer Uses New Chemistry" Nat. Biotech., 5:1111-12 (1987);
43. Exhibit 1043, filed January 24, 2014 in connection with IPR2013-00128: Murakami et al., "Structure of a *Plasmodium yoelii* gene-encoded protein homologous to the Ca<sup>2+</sup>-ATPase of rabbit skeletal muscle sarcoplasmic reticulum" J. Cell Sci., 97, 487-95 (1990);
44. Exhibit 1044, filed January 24, 2014 in connection with IPR2013-00128: Letsinger et al., "2,4-Dinitrobenzenesulfonyl as a Blocking Group for Hydroxyl Functions in Nucleosides" J. Org. Chem., 29: 2615-2618 (1964);
45. Exhibit 1045, filed January 24, 2014 in connection with IPR2013-00128: Handlon & Oppenheimer, "Thiol Reduction of 3'-Azidothymidine to 3'-Aminothymidine: Kinetics and Biomedical Implications" Pharm. Res., 5:297-99 (1988);
46. Exhibit 1047, filed January 24, 2014 in connection with IPR2013-00128: Burns et al., "Selective Reduction of Disulfides by Tris(2-carboxyethyl)phosphine" J. Org. Chem., 56:2648-50 (1991);
47. February 19, 2014 Substitute Motion To Amend Under 37 C.F.R.

Applicant : The Trustees of Columbia University in the City of New  
York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 7 of 11 of Eleventh Supplemental Information Disclosure Statement

§42.121 in connection with IPR2013-00128;

48. Exhibit 2009, filed February 19, 2014 in connection with IPR2013-00128: Substitute Declaration of Floyd Romesberg, Ph.D., in Support of Patent Owner's Motion to Amend;
49. Exhibit 2028, filed February 19, 2014 in connection with IPR2013-00128: Substitute Declaration Of Eric Vermaas Accompanying Patent Owner's Motion To Amend;
50. February 24, 2014 Patent Owner Illumina's Reply To Petitioner's Opposition To Illumina's Motion To Amend;
51. Exhibit 2029, filed February 24, 2014 in connection with IPR2013-00128: Supplementary information for Ex. 1032 (Mitra et al., Analytical Biochem. 320, 55-65, 2003);
52. Exhibit 2030, filed February 24, 2014 in connection with IPR2013-00128: U.S. Pat. 7,393,533, issued July 1, 2008 to Crotty et al.;
53. Exhibit 2032, filed February 24, 2014 in connection with IPR2013-00128: ScanArray Express Line of Microarray Scanners - Brochure;
54. Exhibit 2033, filed February 24, 2014 in connection with IPR2013-00128: U.S. Pat. Appl. Pub. 2010/0323350, published December 23, 2010 - Assignee: Intelligent BioSystems, Inc.;
55. Exhibit 2034, filed February 24, 2014 in connection with IPR2013-00128: February 11, 2014 Second Deposition Transcript of Bruce Branchaud, Ph.D.;
56. Exhibit 2036, filed February 24, 2014 in connection with IPR2013-00128: U.S. Patent No. 7,785,790, issued August 31, 2010 to Church et al.;

Applicant : The Trustees of Columbia University in the City of New  
York

Serial No.: 15/380,284

Filed : December 15, 2016

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57. Exhibit 2037, filed February 24, 2014 in connection with IPR2013-00128: Mullis et al., "Specific Synthesis of DNA in Vitro via a Polymerase-Catalyzed Chain Reaction," pp. 335-350, in Methods in Enzymology, Volume 155, Recombinant DNA, Part F, ed. Wu, Academic Press, Inc., San Diego (1987);
58. Exhibit 2038, filed February 24, 2014 in connection with IPR2013-00128: Brown et al., "Modern machine-aided methods of oligodeoxyribonucleotide synthesis," pp. 1-11; and Ruth, "Oligodeoxynucleotides with reporter groups attached to the base," p. 255, in Oligonucleotides and Analogues, A Practical Approach, ed. Eckstein, Oxford Univ. Press, New York (1991);
59. Exhibit 2039, filed February 24, 2014 in connection with IPR2013-00128: Dawson and Herman et al., "Affinity isolation of active murine erythroleukemia cell chromatin: Uniform distribution of ubiquitinated histone H2A between active and inactive fractions", Journal of Cellular Biochemistry 46:166-173 (1991);
60. Exhibit 2040, filed February 24, 2014 in connection with IPR2013-00128: Rigas et al., "Rapid plasmid library screening using RecA-coated biotinylated probes," PNAS USA 83:9591-9595 (1986);
61. Exhibit 2041, filed February 24, 2014 in connection with IPR2013-00128: U.S. Patent No. 4,888,274, issued December 19, 1989 to Radding et al.;
62. Exhibit 2042, filed February 24, 2014 in connection with IPR2013-00128: Westheimer et al., "Why nature chose phosphates" Science 235:1173-1178 (1987);
63. March 18, 2014 Petitioner's Motion to Exclude in connection

Applicant : The Trustees of Columbia University in the City of New  
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Filed : December 15, 2016  
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with IPR2013-00128;

64. Exhibit 1048, filed March 18, 2014 in connection with IPR2013-00128: Petitioner's Objections to Patentee's Exhibits submitted with its Reply to Petitioner's Opposition to Patentee's Motion to Amend;
65. March 18, 2014 Patentee's Motion to Exclude Petitioner's Evidence in connection with IPR2013-00128;
66. Demonstrative Exhibits of Intelligent Bio-Systems, Inc., for April 23, 2014 hearing, filed April 18, 2014 in connection with IPR2013-00128;
67. Demonstrative Exhibits of Illumina for April 23, 2014 hearing, filed April 21, 2014 in connection with IPR2013-00128;
68. May 22, 2014 Record of April 23, 2014 Oral Hearing in connection with IPR2013-00128; and
69. July 25, 2014 Final Written Decision in connection with IPR2013-00128.

The above-identified application claims benefit under 35 U.S.C. §120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now pending, which is a continuation of U.S. Serial No. 13/959,660, filed August 5, 2013, now U.S. Patent No. 9,133,511, issued September 15, 2015, which is a continuation of U.S. Serial No. 13/672,437, filed November 8, 2012, now abandoned, which is a continuation of U.S. Serial No. 13/339,089, filed December 28, 2011, now abandoned, which is a continuation of U.S. Serial No. 12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575, issued January 3, 2012, which is a continuation of U.S. Serial No. 11/810,509, filed June 5, 2007, now U.S. Patent No.

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Filed : December 15, 2016  
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7,790,869, issued September 7, 2010, which is a continuation of U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S. Patent No. 7,345,159, issued March 18, 2008, which is a divisional of U.S. Serial No. 09/972,364, filed October 5, 2001, now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming the benefit of U.S. Provisional Application No. 60/300,894, filed June 26, 2001, and a continuation-in-part of U.S. Serial No. 09/684,670, filed October 6, 2000, now abandoned.

In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents listed above as items 1-69 need not be provided because such copies have previously been submitted in Information Disclosure Statements, or cited by the U.S. Patent Office, in connection with one or more of U.S. Serial No. 14/670,748, U.S. Serial No. 13/959,660, U.S. Serial No. 13/672,437, U.S. Serial No. 13/339,089, U.S. Serial No. 12/804,284, U.S. Serial No. 11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No. 09/972,364.

This Information Disclosure Statement is being submitted before the mailing of the first Office Action on the merits. In accordance with 37 C.F.R. §1.97(b) no fee is required.

The Examiner is respectfully requested to make the above-listed references of record in the subject application by initialing and dating the attached Substitute PTO-1449 Forms, and returning copies of the initialed and dated PTO-1449 Forms to applicant's undersigned attorney.

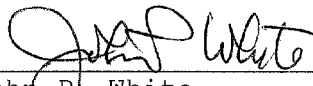
If a telephone interview would be of assistance in advancing prosecution of the subject application, applicant's undersigned

Applicant : The Trustees of Columbia University in the City of New  
York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 11 of 11 of Eleventh Supplemental Information Disclosure  
Statement

attorney invites the Examiner to telephone him at the number  
provided below.

No fee is deemed necessary in connection with the filing of this  
Information Disclosure Statement. However, if any fee is  
required, authorization is hereby given to charge the amount of  
such fee to Deposit Account No. 03-3125.

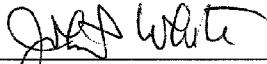
Respectfully submitted,



John P. White  
Registration No. 28,678  
Attorney for Applicant  
Cooper & Dunham LLP  
30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
(212) 278-0400

**Certificate of Transmission**

I hereby certify that this  
correspondence is being  
transmitted via the Electronic  
Filing System (EFS) to the U.S.  
Patent and Trademark Office on  
December 19, 2016.



John P. White  
Reg. No. 28,678

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials <sup>a</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	1	January 29, 2013 Petition for Inter Partes Review of U.S. Patent No. 7,057,026	
	2	February 7, 2013 Revised Petition for Inter Partes Review of U.S. Patent No. 7,057,026	
	3	May, 1, 2013 Preliminary Response under 37 C.F.R. 42.107 in connection with IPR2013-00128	
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	13	Exhibit 2002, filed May 1, 2013 in connection with IPR2013-00128: The Trustees of Columbia University in the City of New York v. Illumina, Inc., 1:12-cv-00376-GMS- Columbia's Amended Answer	

**EXAMINER  
SIGNATURE**
**DATE CONSIDERED**

<sup>a</sup>EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

Applicant: The Trustees of Columbia  
University in the City of New York  
Serial No.: 15/380,284  
Filed: December 15, 2016  
**Eleventh SIDS Exhibit A**



<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	14	Exhibit 2003, filed May 1, 2013 in connection with IPR2013-00128: The Trustees of Columbia University in the City of New York v. Illumina, Inc., 1:12-cv-00376-GMS- IBS's Responses to Illumina's Requests for Admission	
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	17	May 1, 2013 Preliminary Response under 37 C.F.R. 42.107 in connection with IPR2013-00128	
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	22	Exhibit 2007, filed October 24, 2013 in connection with IPR2013-00128: Katagiri et al., "Selective Protection of the Primary Hydroxyl Groups of Oxetanocin A," Chem. Pharm. Bull. 43:884-886 (1995)	
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<b>EXAMINER SIGNATURE</b>	<b>DATE CONSIDERED</b>
<p><small>*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</small></p>	

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	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	25	Exhibit 2016, filed October 24, 2013 in connection with IPR2013-00128: Ruby, Methods in Enzymology (1990)	
	26	Exhibit 2025, filed October 24, 2013 in connection with IPR2013-00128: U.S. Patent No. 7,057,026 file history	
	27	Exhibit 1025, filed January 24, 2014 in connection with IPR2013-00128: Substitute Eric Vermaas Declaration, December 20, 2013	
	28	Exhibit 1021, filed December 23, 2013 in connection with IPR2013-00128: Excerpts from Protective Groups in Organic Synthesis (Theodora W. Greene & Peter G. M. Wuts eds., John Wiley & Sons, Inc. 3rd ed. 1999) (1991)	
	29	Exhibit 1022, filed December 23, 2013 in connection with IPR2013-00128: Signed Deposition Transcript of Dr. Bruce Branchaud on October 3, 2013	
	30	January 24, 2014 Intelligent Bio-Systems Opposition to Illumina's Motion to Amend in connection with IPR2013-00128	
	31	Exhibit 2004, filed May 1, 2013 in connection with IPR2013-00128: The Trustees of Columbia University in the City of New York v. Illumina, Inc., 1:12-cv-00376-GMS- Columbia's Responses to Illumina's Requests for Admission	
	32	Exhibit 2006, filed October 24, 2013 in connection with IPR2013-00128: Green & Wuts, Protective Groups in Organic Synthesis, excerpts from "Protection From the Hydroxyl Group," (1999)	
	33	Exhibit 2007, filed October 24, 2013 in connection with IPR2013-00128: Katagiri et al., "Selective Protection of the Primary Hydroxyl Groups of Oxetanocin A," Chem. Pharm. Bull. 43:884-886 (1995)	
	34	Exhibit 1030, filed January 24, 2014 in connection with IPR2013-00128: Dawson et al., "Affinity Isolation of Transcriptionally Active Murine Erythroleukemia Cell DNA Using a Cleavable Biotinylated Nucleotide Analog" J. of Biol. Chem., 264, 12830-37 (1989)	

<b>EXAMINER SIGNATURE</b>	<b>DATE CONSIDERED</b>
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<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> (Use several sheets if necessary)	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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Examiner Initials <sup>*</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	35	Exhibit 1032, filed January 24, 2014 in connection with IPR2013-00128: Mitra et al., "Fluorescent in situ sequencing on polymerase colonies" Analytical Biochem. 320, 55-65 (2003)	
	36	Exhibit 1033, filed January 24, 2014 in connection with IPR2013-00128: Deposition of Floyd Romesberg, Ph.D., from January 14, 2014	
	37	Exhibit 1034, filed January 24, 2014 in connection with IPR2013-00128: 1999/2000 Pierce Chemical Company catalog (1999)	
	38	Exhibit 1035, filed January 24, 2014 in connection with IPR2013-00128: Second Declaration of Dr. Bruce Branchaud, dated January 23, 2014	
	39	Exhibit 1039, filed January 24, 2014 in connection with IPR2013-00128: Excerpts from the file history of European Patent Application No: 02781434.2	
	40	Exhibit 1041, filed January 24, 2014 in connection with IPR2013-00128: Lukesh et al., "A Potent, Versatile Disulfide-Reducing Agent from Aspartic Acid" J. Am. Chem. Soc., 134, 4057-59 (2012)	
	41	Exhibit 1042, filed January 24, 2014 in connection with IPR2013-00128: Klausner, "Dupont's DNA Sequencer Uses New Chemistry" Nat. Biotech., 5, 1111-12 (1987)	
	42	Exhibit 1043, filed January 24, 2014 in connection with IPR2013-00128: Murakami et al., "Structure of a <i>Plasmodium yoelii</i> gene-encoded protein homologous to the Ca <sup>2+</sup> -ATPase of rabbit skeletal muscle sarcoplasmic reticulum" J. Cell Sci., 97, 487-95 (1990)	
	43	Exhibit 1044, filed January 24, 2014 in connection with IPR2013-00128: Letsinger et al., "2,4-Dinitrobenzenesulphenyl as a Blocking Group for Hydroxyl Functions in Nucleosides" J. Org. Chem., 29, 2615-2618 (1964)	

**EXAMINER  
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**DATE CONSIDERED**

<sup>\*</sup>EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce</b> <b>Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
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	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	44	Exhibit 1045, filed January 24, 2014 in connection with IPR2013-00128: Handlon & Oppenheimer, "Thiol Reduction of 3'-Azidothymidine to 3'-Aminothymidine: Kinetics and Biomedical Implications" Pharm. Res., 5, 297-99 (1988)	
	45	Exhibit 1030, filed January 24, 2014 in connection with IPR2013-00128: Dawson et al., "Affinity Isolation of Transcriptionally Active Murine Erythroleukemia Cell DNA Using a Cleavable Biotinylated Nucleotide Analog" J. of Biol. Chem., 264, 12830-37 (1989)	
	46	Exhibit 1047, filed January 24, 2014 in connection with IPR2013-00128: Burns et al., "Selective Reduction of Disulfides by Tris(2-carboxyethyl)phosphine" J. Org. Chem., 56, 2648-50	
	47	February 19, 2014 Substitute Motion To Amend Under 37 C.F.R. §42.121	
	48	Exhibit 2009, filed February 19, 2014 in connection with IPR2013-00128: Substitute Declaration of Floyd Romesberg, Ph.D., in Support of Patent Owner's Motion to Amend	
	49	Exhibit 2028, filed February 19, 2014 in connection with IPR2013-00128: Substitute Declaration Of Eric Vermaas Accompanying Patent Owner's Motion To Amend	
	50	February 24, 2014 Patent Owner Illumina's Reply To Petitioner's Opposition To Illumina's Motion To Amend	
	51	Exhibit 2029, filed February 24, 2014 in connection with IPR2013-00128: Supplementary information for Ex. 1032 (Mitra et al., Analytical Biochem. 320, 55-65, 2003)	
	52	Exhibit 2032, filed February 24, 2014 in connection with IPR2013-00128: ScanArray Express Line of Microarray Scanners - Brochure	
	53	Exhibit 2034, filed February 24, 2014 in connection with IPR2013-00128: February 11, 2014 Second Deposition Transcript of Bruce Branchaud, Ph.D.	

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<b>Form PTO-1449 (Substitute) U.S. Department of Commerce</b> <b>Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
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	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	54	Exhibit 2037, filed February 24, 2014 in connection with IPR2013-00128: Mullis et al., "Specific Synthesis of DNA in Vitro via a Polymerase-Catalyzed Chain Reaction," pp. 335-350, in Methods in Enzymology, Volume 155, Recombinant DNA, Part F, ed. Wu, Academic Press, Inc., San Diego (1987)	
	55	Exhibit 2038, filed February 24, 2014 in connection with IPR2013-00128: Brown et al., "Modern machine-aided methods of oligodeoxyribonucleotide synthesis," pp. 1-11; and Ruth, "Oligodeoxynucleotides with reporter groups attached to the base," p. 255, in Oligonucleotides and Analogues, A Practical Approach, ed. Eckstein, Oxford Univ. Press, New York (1991)	
	56	Exhibit 2039, filed February 24, 2014 in connection with IPR2013-00128: Dawson and Herman et al., "Affinity isolation of active murine erythroleukemia cell chromatin: Uniform distribution of ubiquitinated histone H2A between active and inactive fractions", Journal of Cellular Biochemistry 46:166-173 (1991)	
	57	Exhibit 1047, filed January 24, 2014 in connection with IPR2013-00128: Burns et al., "Selective Reduction of Disulfides by Tris(2-carboxyethyl)phosphine" J. Org. Chem., 56, 2648-50	
	58	February 19, 2014 Substitute Motion To Amend Under 37 C.F.R. §42.121	
	59	Exhibit 2009, filed February 19, 2014 in connection with IPR2013-00128: Substitute Declaration of Floyd Romesberg, Ph.D., in Support of Patent Owner's Motion to Amend	
	60	Exhibit 2040, filed February 24, 2014 in connection with IPR2013-00128: Rigas et al., "Rapid plasmid library screening using RecA-coated biotinylated probes," PNAS USA 83:9591-9595 (1986)	
	61	Exhibit 2041, filed February 24, 2014 in connection with IPR2013-00128: U.S. Patent No. 4,888,274, issued December 19, 1989 to Radding et al.	

**EXAMINER SIGNATURE**

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**\*EXAMINER:** Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>		<b>Application Number</b>	15/380,284
		<b>Filing Date</b>	December 15, 2016
		<b>First Named Inventor</b>	Jingyue Ju
		<b>Art Unit</b>	1637
		<b>Examiner Name</b>	Jezia Riley
		<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC
<b>INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)</b>			
<b>NON PATENT LITERATURE DOCUMENTS</b>			
<b>Examiner Initials*</b>	<b>Cite No.<sup>1</sup></b>	<b>Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.</b>	<b>T<sup>2</sup></b>
	62	Exhibit 2042, filed February 24, 2014 in connection with IPR2013-00128: Westheimer et al., "Why nature chose phosphates" Science 235:1173-1178 (1987)	
	63	March 18, 2014 Petitioner's Motion to Exclude in connection with IPR2013-00128 (Exhibit 82)	
	64	Exhibit 1048, filed March 18, 2014 in connection with IPR2013-00128: Petitioner's Objections to Patentee's Exhibits submitted with its Reply to Petitioner's Opposition to Patentee's Motion to Amend (Exhibit 83)	
	65	March 18, 2014 Patentee's Motion to Exclude Petitioner's Evidence in connection with IPR2013-00128	
	66	Demonstrative Exhibits of Intelligent Bio-Systems, Inc., for April 23, 2014 hearing, filed April 18, 2014 in connection with IPR2013-00128	
	67	Demonstrative Exhibits of Illumina for April 23, 2014 hearing, filed April 21, 2014 in connection with IPR2013-00128	
	68	May 22, 2014 Record of April 23, 2014 Oral Hearing in connection with IPR2013-00128	
	69	July 25, 2014 Final Written Decision in connection with IPR2013-00128	
<b>EXAMINER SIGNATURE</b> /LAYLA D BERRY/		<b>DATE CONSIDERED</b> 02/07/2017	
<p>*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</p>			

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

**By EFS**

Commissioner for Patents  
Alexandria, VA 22313-1450

**TWELFTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

The items listed below are documents filed in connection with the *Inter Partes* Review of U.S. Patent No. 7,713,698, IPR2012-00006. U.S. Patent No. 7,713,698 has a common licensee and common inventors with the subject application.

1. May 4, 2013 Petition for Inter Partes Review of U.S. Patent No. 8,158,346, issued April 17, 2012;
2. August 5, 2013 Patent Owner Preliminary Response to Petition for Inter Partes Review of U.S. Patent No. 8,158,246, issued April 17, 2012;
3. Exhibit 1001, filed May 4, 2013 in connection with IPR2013-00266: U.S. Patent No. 8,158,346, issued April 17, 2012 to Shankar Balasubramanian et al.;
4. Exhibit 1011, filed May 4, 2013 in connection with IPR2013-

Applicant : The Trustees of Columbia University in the City of New  
York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 2 of 9 of Twelfth Supplemental Information Disclosure Statement

00266: May 3, 2013 Declaration of Dr. Bruce Branchaud;

5. Exhibit 1012, filed May 4, 2013 in connection with IPR2013-00266: Excerpts from the '346 Patent File History;
6. Exhibit 1013, filed May 4, 2013 in connection with IPR2013-00266: Excerpts from the file history of European Patent Application No: 02781434.2;
7. October 28, 2013 Decision Instituting Inter Partes Review in connection with IPR2013-00266;
8. December 30, 2013 Illumina Motion to Amend Under 37 C.F.R. §42.121 in connection with IPR2013-00266;
9. Exhibits 2004, 2005, and 2028, filed December 30, 2013 in connection with IPR2013-00266: Floyd Romesburg Declaration, CV, and List of Documents Considered by Romesburg;
10. Exhibit 2006, filed December 30, 2013 in connection with IPR2013-00266: 12/804,025 application as filed on July 13, 2010 by Balasubramanian et al. [WO 03/048387];
11. Exhibit 2007, filed December 30, 2013 in connection with IPR2013-00266: Application 10/227,131 - Barnes et al., filed August 23, 2002;
12. Exhibit 2021, filed December 30, 2013 in connection with IPR2013-00266: Bystrom, Branchaud et al., "ATP Analogs with Non-transferable Groups in the g Position As Inhibitors of Glycerol Kinase" Bioorganic & Medicinal Chemistry Letters, 7:2613-2616 (1997);
13. Exhibit 2022, filed December 30, 2013 in connection with IPR2013-00266: Pages from Handbook of Reagents for Organic Synthesis: Reagents for Silicon-Mediated Organic Synthesis



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York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 3 of 9 of Twelfth Supplemental Information Disclosure Statement

(Philip L. Fuchs, ed.) (2011);

14. Exhibit 2023, filed December 30, 2013 in connection with IPR2013-00266: Eric Vermaas Declaration - Redacted version;
15. Exhibit 2024, filed December 30, 2013 in connection with IPR2013-00266: Excerpts from 2013-10-03 Bruce Branchaud Deposition Transcript in IPR2013-00128;
16. Exhibit 2025, filed December 30, 2013 in connection with IPR2013-00266: U.S. Pat. 6,001,566, issued December 14, 1999 to Canard;
17. Petitioner's February 28, 2014 Opposition to Patentee Motion to Amend in connection with IPR2013-00266;
18. Exhibit 1021, filed February 28, 2014 in connection with IPR2013-00266: Second Declaration of Dr. Bruce Branchaud in support of Intelligent Bio-Systems, Inc.'s Opposition to Illumina's Motion to Amend, from February 28, 2014;
19. Exhibit 1022, filed February 28, 2014 in connection with IPR2013-00266: Deposition of Floyd Romesberg, Ph.D., from January 14, 2014;
20. Exhibit 1029, filed February 28, 2014 in connection with IPR2013-00266: Deposition of Eric Vermaas from January 13, 2014;
21. Exhibit 1035, filed February 28, 2014 in connection with IPR2013-00266: Excerpts from Protective Groups in Organic Synthesis (Theodora W. Greene & Peter G. M. Wuts eds., John Wiley & Sons, Inc. 3rd ed. 1999) (1991);
22. Exhibit 1038, filed February 28, 2014 in connection with IPR2013-00266: Zavgorodny et al., "1-Alkylthioalkylation of

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Serial No.: 15/380,284

Filed : December 15, 2016

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Nucleoside Hydroxyl Functions and Its Synthetic Applications: A New Versatile Method in Nucleoside Chemistry" 32 Tetrahedron Letters 7593 (1991);

23. March 21, 2014 Patent Owner's Reply to Petitioner's Opposition to Patent Owner's Motion to Amend in connection with IPR2013-00266;
24. Exhibit 2030, filed March 21, 2014 in connection with IPR2013-00266: March 11, 2014 Bruce Branchaud Deposition Transcript;
25. Exhibit 2032, filed March 21, 2014 in connection with IPR2013-00266: Excerpts from 2014-02-11 Bruce Branchaud Deposition Transcript in related IPR2013-00128;
26. Exhibit 2043, filed March 21, 2014 in connection with IPR2013-00266: English translation of Loubinoux et al., "Protection Of Phenols By The Azidomethylene Group Application To The Synthesis Of Unstable Phenols" Tetrahedron, 44:6055-6064 (1988);
27. Exhibit 2044, filed March 21, 2014 in connection with IPR2013-00266: Excerpts from October 3, 2013 Bruce Branchaud Deposition Transcript in related Inter Partes Review IPR2013-00128;
28. Exhibit 2045, filed March 21, 2014 in connection with IPR2013-00266: Welch et al., "Syntheses of Nucleosides Designed for Combinatorial DNA Sequencing" Chem. Eur. J., 5:951-960 (1999);
29. Exhibit 2046, filed March 21, 2014 in connection with IPR2013-00266: Welch et al., Corrigenda to "Syntheses of Nucleosides Designed for Combinatorial DNA Sequencing" Chem.

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Serial No.: 15/380,284

Filed : December 15, 2016

Page 5 of 9 of Twelfth Supplemental Information Disclosure Statement

Eur. J., 11:7145 (2005);

30. Exhibit 2047, filed March 21, 2014 in connection with IPR2013-00266: Wu et al., "Termination of DNA synthesis by N<sup>6</sup>-alkylated, not 3'-O-alkylated, photocleavable 2'-deoxyadenosine triphosphates", Nucleic Acids Research 35:6339-6349 (2007);
31. Exhibit 2048, filed March 21, 2014 in connection with IPR2013-00266: Taylor et al., "Rise per base pair in helices of double-stranded rotavirus RNA determined by electron microscopy" Virus Research, 2:175-182 (1985);
32. Exhibit 2049, filed March 21, 2014 in connection with IPR2013-00266: Watson et al., Molecular Biology of the Gene, Fifth Edition, Chapter 6 (2004);
33. Exhibit 2050, filed March 21, 2014 in connection with IPR2013-00266: Shen et al., "RNA structure at high resolution" FASEB J., 9:1023-1033 (1995);
34. Exhibit 2051, filed March 21, 2014 in connection with IPR2013-00266: Holtzman et al., "Electron microscopy of complexes of isolated acetylcholine receptor, biotinyl-toxin, and avidin" Proc. Natl. Acad. Sci. USA, 79:310-314 (1982);
35. Exhibit 2052, filed March 21, 2014 in connection with IPR2013-00266: Pugliese et al., "Three-dimensional Structure of the Tetragonal Crystal Form of Egg-white Avidin in its Functional Complex with Biotin at 2.7 Angstrom Resolution" Journal of Molecular Biology, 231:698-710 (1993);
36. Exhibit 2053, filed March 21, 2014 in connection with IPR2013-00266: Fersht, "Fidelity of replication of phage

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Serial No.: 15/380,284

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Page 6 of 9 of Twelfth Supplemental Information Disclosure Statement

φX174 DNA by DNA polymerase III holoenzyme: Spontaneous mutation by misincorporation" Proc. Natl. Acad. Sci. USA, 76:4946-4950 (1979);

37. Exhibit 2054, filed March 21, 2014 in connection with IPR2013-00266: Fersht et al., "DNA polymerase accuracy and spontaneous mutation rates: Frequencies of purine-purine, purine-pyrimidine, and pyrimidine-pyrimidine mismatches during DNA replication" Proc. Natl. Acad. Sci. USA, 78:4251-4255 (1981);
38. Exhibit 2055, filed March 21, 2014 in connection with IPR2013-00266: Bebenek et al., "Frameshift errors initiated by nucleotide misincorporation" Proc. Natl. Acad. Sci. USA, 87:4946-4950 (1990);
39. Exhibit 2056, filed March 21, 2014 in connection with IPR2013-00266: Bebenek et al., "The Effects of dNTP Pool Imbalances on Frameshift Fidelity during DNA Replication" J. Biol. Chem., 267:3589-3596 (1992);
40. Exhibit 2057, filed March 21, 2014 in connection with IPR2013-00266: Greene and Wuts, Protective Groups in Organic Synthesis, 3rd ed., Chapter 1 (1999);
41. April 18, 2014 Petitioner Motion for Observations on the Cross-Examination Testimony of Dr. Romesberg, in connection with IPR2013-00266;
42. April 18, 2014 Petitioner Motion to Exclude Evidence in connection with IPR2013-00266;
43. Exhibit 1042, filed April 18, 2014 in connection with IPR2013-00266: April 10, 2014 transcript of Deposition of Floyd Romesberg;

Applicant : The Trustees of Columbia University in the City of New  
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Serial No.: 15/380,284  
Filed : December 15, 2016  
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44. April 18, 2014 Patentee Motion to Exclude Evidence in connection with IPR2013-00266;
45. May 2, 2014 Patentee Response to Petitioner Motion for Observations on Romesberg Testimony, in connection with IPR2013-00266;
46. Exhibit 1045, filed May 22, 2014 in connection with IPR2013-00266: Petitioner Demonstratives for May 28, 2014 Oral Hearing;
47. Exhibit 2060, filed May 22, 2014 in connection with IPR2013-00266: Patentee Demonstratives for May 28, 2014 Oral Hearing;
48. Transcript of May 28, 2014 Oral Hearing in IPR2013-00266, entered July 8, 2014; and
49. October 28, 2014 Final Written Decision in connection with IPR2013-00266.

The above-identified application claims benefit under 35 U.S.C. §120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now pending, which is a continuation of U.S. Serial No. 13/959,660, filed August 5, 2013, now U.S. Patent No. 9,133,511, issued September 15, 2015, which is a continuation of U.S. Serial No. 13/672,437, filed November 8, 2012, now abandoned, which is a continuation of U.S. Serial No. 13/339,089, filed December 28, 2011, now abandoned, which is a continuation of U.S. Serial No. 12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575, issued January 3, 2012, which is a continuation of U.S. Serial No. 11/810,509, filed June 5, 2007, now U.S. Patent No. 7,790,869, issued September 7, 2010, which is a continuation of U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S. Patent No. 7,345,159, issued March 18, 2008, which is a

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Filed : December 15, 2016

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divisional of U.S. Serial No. 09/972,364, filed October 5, 2001, now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming the benefit of U.S. Provisional Application No. 60/300,894, filed June 26, 2001, and a continuation-in-part of U.S. Serial No. 09/684,670, filed October 6, 2000, now abandoned.

In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents listed above as items 1-49 need not be provided because such copies have previously been submitted in Information Disclosure Statements, or cited by the U.S. Patent Office, in connection with one or more of U.S. Serial No. 14/670,748, U.S. Serial No. 13/959,660, U.S. Serial No. 13/672,437, U.S. Serial No. 13/339,089, U.S. Serial No. 12/804,284, U.S. Serial No. 11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No. 09/972,364.

This Information Disclosure Statement is being submitted before the mailing of the first Office Action on the merits. In accordance with 37 C.F.R. §1.97(b) no fee is required.

The Examiner is respectfully requested to make the above-listed references of record in the subject application by initialing and dating the attached Substitute PTO-1449 Forms, and returning copies of the initialed and dated PTO-1449 Forms to applicant's undersigned attorney.

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicant's undersigned attorney invites the Examiner to telephone him at the number provided below.

Applicant : The Trustees of Columbia University in the City of New York

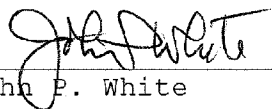
Serial No.: 15/380,284

Filed : December 15, 2016

Page 9 of 9 of Twelfth Supplemental Information Disclosure Statement

No fee is deemed necessary in connection with the filing of this Information Disclosure Statement. However, if any fee is required, authorization is hereby given to charge the amount of such fee to Deposit Account No. 03-3125.

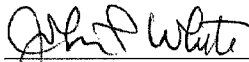
Respectfully submitted,



John P. White  
Registration No. 28,678  
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30 Rockefeller Plaza  
20<sup>th</sup> Floor  
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**Certificate of Transmission**

I hereby certify that this correspondence is being transmitted via the Electronic Filing System (EFS) to the U.S. Patent and Trademark Office on December 19, 2016.



John P. White  
Reg. No. 28,678

/LAYLA D BERRY/

02/07/2017

**Form PTO-1449 (Substitute) U.S. Department of Commerce  
Patent and Trademark Office**

Application Number	15/380,284
Filing Date	December 15, 2016
First Named Inventor	Jingyue Ju
Art Unit	1637
Examiner Name	Jezia Riley
Attorney Docket No.	62239-BZA9/JPW/AC

**INFORMATION DISCLOSURE STATEMENT  
(Use several sheets if necessary)**
**U.S. PATENT DOCUMENTS**

Examiner Initials <sup>4</sup>	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	3	8,158,346	04-17-2012	Balasubramanian et al.
	16	6,001,566	12-14-1999	Canard

**UNPUBLISHED U.S. PATENT DOCUMENTS**

Examiner Initials <sup>4</sup>	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Filing Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	10	12/804,025	07-13-2010	Balasubramanian et al.
	11	10/227,131	08-23-2002	Barnes et al.

**FOREIGN PATENT DOCUMENTS**

Examiner Initials <sup>4</sup>	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T <sup>6</sup>

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials <sup>4</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
	1	May 4, 2013 Petition for Inter Partes Review of U.S. Patent No. 8,158,346, issued April 17, 2012	
	2	August 5, 2013 Patent Owner Preliminary Response to Petition for Inter Partes Review of U.S. Patent No. 8,158,246, issued April 17, 2012	
	4	Exhibit 1012, filed May 4, 2013 in connection with IPR2013-00266: Excerpts from the '346 Patent File History	
	5	Exhibit 1013, filed May 4, 2013 in connection with IPR2013-00266: Excerpts from the file history of European Patent Application No: 02781434.2	
	6	October 28, 2013 Decision Instituting Inter Partes Review in connection with IPR2013-00266	
	7	December 30, 2013 Illumina Motion to Amend Under 37 C.F.R. §42.121 in connection with IPR2013-00266	
	8	Exhibits 2004, 2005, and 2028, filed December 30, 2013 in connection with IPR2013-00266: Floyd Romesburg Declaration, CV, and List of Documents Considered by Romesburg	

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SIGNATURE**
**DATE CONSIDERED**

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Applicant: The Trustees of Columbia  
University in the City of New York  
Serial No.: 15/380,284  
Filed: December 15, 2016  
Twelfth SIDS Exhibit A



<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	9	Exhibit 2021, filed December 30, 2013 in connection with IPR2013-00266: Bystrom, Branchaud et al., "ATP Analogs with Non-transferable Groups in the g Position As Inhibitors of Glycerol Kinase" Bioorganic & Medicinal Chemistry Letters, 7:2613-2616 (1997)	
	12	Exhibit 2024, filed December 30, 2013 in connection with IPR2013-00266: Excerpts from 2013-10-03 Bruce Branchaud Deposition Transcript in IPR2013-00128	
	13	Petitioner's February 28, 2014 Opposition to Patentee Motion to Amend in connection with IPR2013-00266	
	14	May 4, 2013 Petition for Inter Partes Review of U.S. Patent No. 8,158,346, issued April 17, 2012	
	15	August 5, 2013 Patent Owner Preliminary Response to Petition for Inter Partes Review of U.S. Patent No. 8,158,246, issued April 17, 2012	
	17	Exhibit 1012, filed May 4, 2013 in connection with IPR2013-00266: Excerpts from the '346 Patent File History	
	18	Exhibit 1021, filed February 28, 2014 in connection with IPR2013-00266: Second Declaration of Dr. Bruce Branchaud in support of Intelligent Bio-Systems, Inc.'s Opposition to Illumina's Motion to Amend, from February 28, 2014	
	19	Exhibit 1022, filed February 28, 2014 in connection with IPR2013-00266: Deposition of Floyd Romesberg, Ph.D., from January 14, 2014	
	20	Exhibit 1029, filed February 28, 2014 in connection with IPR2013-00266: Deposition of Eric Vermaas from January 13, 2014	
	21	Exhibit 1035, filed February 28, 2014 in connection with IPR2013-00266: Excerpts from Protective Groups in Organic Synthesis (Theodora W. Greene & Peter G. M. Wuts eds., John Wiley & Sons, Inc. 3rd ed. 1999) (1991)	
	22	Exhibit 1038, filed February 28, 2014 in connection with IPR2013-00266: Zavgorodny et al., "1-Alkylthioalkylation of Nucleoside Hydroxyl Functions and Its Synthetic Applications: A New Versatile Method in Nucleoside Chemistry" 32 Tetrahedron Letters 7593 (1991)	

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	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	23	March 21, 2014 Patent Owner's Reply to Petitioner's Opposition to Patent Owner's Motion to Amend in connection with IPR2013-00266	
	24	Exhibit 2030, filed March 21, 2014 in connection with IPR2013-00266: March 11, 2014 Bruce Branchaud Deposition Transcript	
	25	Exhibit 2032, filed March 21, 2014 in connection with IPR2013-00266: Excerpts from 2014-02-11 Bruce Branchaud Deposition Transcript in related IPR2013-00128	
	26	Exhibit 2043, filed March 21, 2014 in connection with IPR2013-00266: English translation of Loubinoux et al., "Protection Of Phenols By The Azidomethylene Group Application To The Synthesis Of Unstable Phenols" Tetrahedron, 44:6055-6064 (1988)	
	27	Exhibit 2044, filed March 21, 2014 in connection with IPR2013-00266: Excerpts from October 3, 2013 Bruce Branchaud Deposition Transcript in related Inter Partes Review IPR2013-00128	
	28	Exhibit 2045, filed March 21, 2014 in connection with IPR2013-00266: Welch et al., "Syntheses of Nucleosides Designed for Combinatorial DNA Sequencing" Chem. Eur. J., 5:951-960 (1999)	
	29	Exhibit 2046, filed March 21, 2014 in connection with IPR2013-00266: Welch et al., Corrigenda to "Syntheses of Nucleosides Designed for Combinatorial DNA Sequencing" Chem. Eur. J., 11:7145 (2005)	
	30	Exhibit 2047, filed March 21, 2014 in connection with IPR2013-00266: Wu et al., "Termination of DNA synthesis by N <sup>6</sup> -alkylated, not 3'-O-alkylated, photocleavable 2'-deoxyadenosine triphosphates", Nucleic Acids Research 35:6339-6349 (2007)	
	31	Exhibit 2048, filed March 21, 2014 in connection with IPR2013-00266: Taylor et al., "Rise per base pair in helices of double-stranded rotavirus RNA determined by electron microscopy" Virus Research, 2:175-182 (1985)	

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SIGNATURE**

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\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

<b>Form PTO-1449 (Substitute) U.S. Department of Commerce</b> <b>Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

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	32	Exhibit 2049, filed March 21, 2014 in connection with IPR2013-00266: Watson et al., Molecular Biology of the Gene, Fifth Edition, Chapter 6 (2004)	
	33	Exhibit 2050, filed March 21, 2014 in connection with IPR2013-00266: Shen et al., "RNA structure at high resolution" FASEB J., 9:1023-1033 (1995)	
	34	Exhibit 2051, filed March 21, 2014 in connection with IPR2013-00266: Holtzman et al., "Electron microscopy of complexes of isolated acetylcholine receptor, biotinyl-toxin, and avidin" Proc. Natl. Acad. Sci. USA, 79:310-314 (1982)	
	35	Exhibit 2052, filed March 21, 2014 in connection with IPR2013-00266: Pugliese et al., "Three-dimensional Structure of the Tetragonal Crystal Form of Egg-white Avidin in its Functional Complex with Biotin at 2.7 Angstrom Resolution" Journal of Molecular Biology, 231:698-710 (1993)	
	36	Exhibit 2053, filed March 21, 2014 in connection with IPR2013-00266: Fersht, "Fidelity of replication of phage $\phi$ X174 DNA by DNA polymerase III holoenzyme: Spontaneous mutation by misincorporation" Proc. Natl. Acad. Sci. USA, 76:4946-4950 (1979)	
	37	Exhibit 2054, filed March 21, 2014 in connection with IPR2013-00266: Fersht et al., "DNA polymerase accuracy and spontaneous mutation rates: Frequencies of purine-purine, purine-pyrimidine, and pyrimidine-pyrimidine mismatches during DNA replication" Proc. Natl. Acad. Sci. USA, 78:4251-4255 (1981)	
	38	Exhibit 2055, filed March 21, 2014 in connection with IPR2013-00266: Bebenek et al., "Frameshift errors initiated by nucleotide misincorporation" Proc. Natl. Acad. Sci. USA, 87:4946-4950 (1990)	
	39	Exhibit 2056, filed March 21, 2014 in connection with IPR2013-00266: Bebenek et al., "The Effects of dNTP Pool Imbalances on Frameshift Fidelity during DNA Replication" J. Biol. Chem., 267:3589-3596 (1992)	

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SIGNATURE**
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<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>		<b>Application Number</b>	15/380,284
		<b>Filing Date</b>	December 15, 2016
		<b>First Named Inventor</b>	Jingyue Ju
		<b>Art Unit</b>	1637
		<b>Examiner Name</b>	Jezia Riley
		<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC
<b>INFORMATION DISCLOSURE STATEMENT</b> (Use several sheets if necessary)			
<b>NON PATENT LITERATURE DOCUMENTS</b>			
<b>Examiner Initials*</b>	<b>Cite No.<sup>1</sup></b>	<b>Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.</b>	<b>T<sup>6</sup></b>
	40	Exhibit 2057, filed March 21, 2014 in connection with IPR2013-00266: Greene and Wuts, Protective Groups in Organic Synthesis, 3rd ed., Chapter 1 (1999)	
	41	April 18, 2014 Petitioner Motion for Observations on the Cross-Examination Testimony of Dr. Romesberg, in connection with IPR2013-00266	
	42	April 18, 2014 Petitioner Motion to Exclude Evidence in connection with IPR2013-00266	
	43	Exhibit 1042, filed April 18, 2014 in connection with IPR2013-00266: April 10, 2014 transcript of Deposition of Floyd Romesberg	
	44	April 18, 2014 Patentee Motion to Exclude Evidence in connection with IPR2013-00266	
	45	May 2, 2014 Patentee Response to Petitioner Motion for Observations on Romesberg Testimony, in connection with IPR 2013-00266	
	46	Exhibit 1045, filed May 22, 2014 in connection with IPR2013-00266: Petitioner Demonstratives for May 28, 2014 Oral Hearing	
	47	Exhibit 2060, filed May 22, 2014 in connection with IPR2013-00266: Patentee Demonstratives for May 28, 2014 Oral Hearing	
	48	Transcript of May 28, 2014 Oral Hearing in IPR2013-00266, entered July 8, 2014	
	49	October 28, 2014 Final Written Decision in connection with IPR2013-00266	
<b>EXAMINER /LAYLA D BERRY/ SIGNATURE</b>		<b>DATE CONSIDERED 02/07/2017</b>	
<p><sup>6</sup>EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible.</p> <p><sup>6</sup>Applicant is to place a check mark here if English Language Translation is attached.</p>			

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

THIRTEENTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Form PTO-1449 (Substitute) attached hereto as **Exhibit A**.

The items listed below are documents filed in connection with the *Inter Partes* Review of U.S. Patent No. 7,057,026, IPR2013-00324, which was petitioned for by the licensee, of the subject application.

1. June 4, 2013 Petition for *Inter Partes* Review of U.S. Patent No. 7,057,026;
2. Exhibit 1004, filed June 4, 2013 in connection with IPR2013-00324: J. Meinwald, An Approach To the Synthesis of Pederin, 49 Pure and Appl. Chem. 1275 (1977);
3. Exhibit 1005, filed June 4, 2013 in connection with IPR2013-00324: Takeshi Matsumoto et al., A Revised Structure of Pederin, 60 Tetrahedron Letters 6297 (1968);

Applicant : The Trustees of Columbia University in the City of New York

Serial No.: 15/380,284

Filed : December 15, 2016

Page 2 of 4 of Thirteenth Supplemental Information Disclosure Statement

4. Exhibit 1009, filed June 4, 2013 in connection with IPR2013-00324: June 4, 2013 Declaration of Dr. Bruce Branchaud;
5. Exhibit 1010, filed June 4, 2013 in connection with IPR2013-00324: Excerpts from the '026 Patent File History;
6. Exhibit 1011, filed June 4, 2013 in connection with IPR2013-00324: Excerpts from the file history of European Patent Application No: 02781434.2; and
7. November 21, 2013 Decision Denying Institution of *Inter Partes* Review of U.S. Patent No. 7,057,026 in connection with IPR2013-00324.

The above-identified application claims benefit under 35 U.S.C. §120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now pending, which is a continuation of U.S. Serial No. 13/959,660, filed August 5, 2013, now U.S. Patent No. 9,133,511, issued September 15, 2015, which is a continuation of U.S. Serial No. 13/672,437, filed November 8, 2012, now abandoned, which is a continuation of U.S. Serial No. 13/339,089, filed December 28, 2011, now abandoned, which is a continuation of U.S. Serial No. 12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575, issued January 3, 2012, which is a continuation of U.S. Serial No. 11/810,509, filed June 5, 2007, now U.S. Patent No. 7,790,869, issued September 7, 2010, which is a continuation of U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S. Patent No. 7,345,159, issued March 18, 2008, which is a divisional of U.S. Serial No. 09/972,364, filed October 5, 2001, now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming the benefit of U.S. Provisional Application No. 60/300,894, filed June 26, 2001, and a continuation-in-part of U.S. Serial No. 09/684,670, filed October 6, 2000, now abandoned.

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York

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Page 3 of 4 of Thirteenth Supplemental Information Disclosure Statement

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Serial No.: 15/380,284

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Page 4 of 4 of Thirteenth Supplemental Information Disclosure Statement

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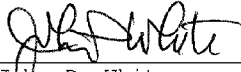
Respectfully submitted,



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John P. White  
Reg. No. 28,678

/LAYLA D BERRY/

02/07/2017

Page 188 of 233

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B./



<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
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	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
	1	June 4, 2013 Petition for Inter Partes Review of U.S. Patent No. 7,057,026	
	2	Exhibit 1004, filed June 4, 2013 in connection with IPR2013-00324: J. Meinwald, An Approach To the Synthesis of Pederin, 49 Pure and Appl. Chem. 1275 (1977)	
	3	Exhibit 1005, filed June 4, 2013 in connection with IPR2013-00324: Takeshi Matsumoto et al., A Revised Structure of Pederin, 60 Tetrahedron Letters 6297 (1968)	
	4	Exhibit 1009, filed June 4, 2013 in connection with IPR2013-00324: June 4, 2013 Declaration of Dr. Bruce Branchaud	
	5	Exhibit 1010, filed June 4, 2013 in connection with IPR2013-00324: Excerpts from the '026 Patent File History	
	6	Exhibit 1011, filed June 4, 2013 in connection with IPR2013-00324: Excerpts from the file history of European Patent Application No: 02781434.2	
	7	November 21, 2013 Decision Denying Institution of Inter Partes Review of U.S. Patent No. 7,057,026 in connection with IPR2013-00324	

EXAMINER  
SIGNATURE /LAYLA D BERRY/

DATE CONSIDERED 02/07/2017

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

Applicant: The Trustees of Columbia  
University in the City of New York  
Serial No.: 15/380,284  
Filed: December 15, 2016  
Thirteenth SIDS Exhibit A

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

**By EFS**

Commissioner for Patents  
Alexandria, VA 22313-1450

**FOURTEENTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Forms PTO-1449 (Substitute) attached hereto as **Exhibit A**.

The items listed below are documents filed in connection with the *Inter Partes* Review of U.S. Patent No. 7,566,537, IPR2013-00517, which was petitioned for by the licensee of the subject application.

1. August 19, 2013 Petition 1 of 2 for Inter Partes Review of U.S. Patent No. 7,566,537, issued July 28, 2009;
2. August 30, 2013 Revised Petition 1 of 2 for Inter Partes Review of U.S. Patent No. 7,566,537, issued July 28, 2009;
3. Exhibit 1001, filed August 19, 2013 in connection with IPR2013-00517: U.S. Patent No. 7,566,537, issued July 28, 2009 to Shankar Balasubramanian et al.;
4. Exhibit 1003, filed August 19, 2013 in connection with IPR2013-00517: U.S. Application Serial No. 09/684,670, filed

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October 6, 2000 by Jingyue Ju et al.;

5. Exhibit 1010, filed August 19, 2013 in connection with IPR2013-00517: European Patent No. 0251786 B1, issued Nov. 30, 1994 to George Leonard Trainor;
6. Exhibit 1011, filed August 19, 2013 in connection with IPR2013-00517: August 16, 2013 Declaration of Dr. Bruce Branchaud;
7. Exhibit 1012, filed August 19, 2013 in connection with IPR2013-00517: Excerpts from the March 20, 2013 Deposition Transcript of Dr. Xiaohai Liu;
8. February 13, 2014 Decision of Institution of Inter Partes Review IPR2013-00517;
9. May 5, 2014 Patent Owner Response in connection with IPR2013-00517;
10. Exhibit 2005, filed May 5, 2014 in connection with IPR2013-00517: IBS's Answer, Affirmative Defenses & Counterclaims to Illumina, Inc. and Illumina Cambridge Ltd.'s Second Amended Counterclaims to Amended Complaint, Columbia v. Illumina, No. 12-CV-00376 (D. Del);
11. Exhibit 2006, filed May 5, 2014 in connection with IPR2013-00517: Excerpts from file history of U.S. Patent Application 13/305,415, filed November 28, 2011, Gordon et al.;
12. Exhibit 2007, filed May 5, 2014 in connection with IPR2013-00517: U.S. Patent Application Publication No. 2012/0052489, published March 1, 2012 to Gordon et al.;
13. Exhibit 2008, filed May 5, 2014 in connection with IPR2013-00517: U.S. Patent Application Publication No. 2011/0124054,

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published May 26, 2011 to Olejnik et al.;

14. Exhibit 2009, filed May 5, 2014 in connection with IPR2013-00517: U.S. Patent Application Publication No. 2010/0159531, published June 24, 2010 to Gordon et al.;
15. Exhibit 2010, filed May 5, 2014 in connection with IPR2013-00517: Excerpts from prosecution history of U.S. Patent No. 7,566,537, issued July 28, 2009, Barnes et al.;
16. Exhibit 2011, filed May 5, 2014 in connection with IPR2013-00517: May 5, 2014 Declaration Of Floyd Romesberg, Ph.D.;
17. Exhibit 2013, filed May 5, 2014 in connection with IPR2013-00517: Ranganathan et al., "Facile Conversion of Adenosine into New 2'-Substituted-2'-Deoxy-Arabinofuranosyladenine Derivatives: Stereospecific Syntheses of 2'-Azido-2'-Deoxy-, 2'-Amino-2'-Deoxy-, and 2'-Mercapto-2'-Deoxy- $\beta$ -D-Arabinofuranosyladenines" Tetrahedron Letters 45:4341-44 (1978);
18. Exhibit 2014, filed May 5, 2014 in connection with IPR2013-00517: Mungall et al., "Use of the Azido Group in the Synthesis of 5' Terminal Aminodeoxythymidine Oligonucleotides" J. Org. Chem., 40:1659-1662 (1975);
19. Exhibit 2015, filed May 5, 2014 in connection with IPR2013-00517: U.S. Patent No. 5,959,089, issued September 28, 1999 to Hannessian;
20. Exhibit 2016, filed May 5, 2014 in connection with IPR2013-00517: Pilard et al., "A Stereospecific Synthesis OF (+),  $\alpha$ -Conhydrine and (+)  $\beta$ -Conhydrine)" Tet. Lett., 25:1555-1556 (1984);
21. Exhibit 2017, filed May 5, 2014 in connection with IPR2013-

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- 00517: "Synthesis of a Novel Stable GM<sub>3</sub>-Lactone Analogue as Hapten for a Possible Immunization against Cancer" Tietze et al., Angew. Chem. Int. Ed., 36:1615, 1616 (1997);
22. Exhibit 2018, filed May 5, 2014 in connection with IPR2013-00517: Kit, "Deoxyribonucleic Acids" Annual Rev. Biochem, 32:43 (1963);
23. Exhibit 2019, filed May 5, 2014 in connection with IPR2013-00517: Canard et al., "Catalytic editing properties of DNA polymerases" PNAS USA 92:10859 (1995);
24. Exhibit 2020, filed May 5, 2014 in connection with IPR2013-00517: The Merck Index, p. 9815 (entry for Triphenylphosphine) (13<sup>th</sup> Edition, 2001);
25. Exhibit 2021, filed May 5, 2014 in connection with IPR2013-00517: Lee et al., "Unwinding of double-stranded DNA helix by dehydration" PNAS 78:2838-42 (1981);
26. Exhibit 2022, filed May 5, 2014 in connection with IPR2013-00517: Christensen et al., "Specific Chemical Synthesis of Ribonucleoside O-Benzyl Ethers" J. Am. Chem. Soc., 37:3398 (1972);
27. Exhibit 2023, filed May 5, 2014 in connection with IPR2013-00517: Watkins et al., "Synthesis of Oligodeoxyribonucleotides Using N-Benzyloxycarbonyl-Blocked Nucleosides", J. Am. Chem. Soc. 104:5702-08 (1982);
28. Exhibit 2025, filed May 5, 2014 in connection with IPR2013-00517: Yoshimoto et al., "Tris(2,4,6-trimethoxyphenyl)phosphine (TTMPP): A Novel Catalyst for Selective Deacetylation" Chemistry Letters 30:934-35 (2001);
29. Exhibit 2026, filed May 5, 2014 in connection with IPR2013-

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00517: Chapter 3 of Protective Groups in Organic Synthesis (Theodora W. Greene & Peter G. M. Wuts eds., John Wiley & Sons, Inc. 3rd ed. 1999) (1991);

30. Exhibit 2027, filed May 5, 2014 in connection with IPR2013-00517: Bentley et al., "Accurate whole human genome sequencing using reversible terminator chemistry" Nature 456:53-59 (2008);
31. Exhibit 2029, filed May 5, 2014 in connection with IPR2013-00517: Shendure et al., "Advanced Sequencing Technologies: Methods And Goals" Nature Reviews Genetics, 5:335-44 (2004);
32. Exhibit 2034, filed May 5, 2014 in connection with IPR2013-00517: U.S. Patent No. 7,279,563, issued October 9, 2007 to Kwiatkowski;
33. Exhibit 2035, filed May 5, 2014 in connection with IPR2013-00517: PCT International Publication No. WO 96/23807, published August 8, 1996 to Kwiatkowski;
34. Exhibit 2036, filed May 5, 2014 in connection with IPR2013-00517: PCT International Publication No. WO 93/12340, published October 28, 1993 to Rosenthal;
35. Exhibit 2039, filed May 5, 2014 in connection with IPR2013-00517: Transcript of April 8, 2014 Deposition of Bruce Branchaud, Ph.D.;
36. Exhibit 2044, filed May 5, 2014 in connection with IPR2013-00517: Excerpts of Transcript of March 20, 2013 Deposition of Dr. Xiaohai Liu in Columbia v. Illumina, 12-cv-376 (D. Del);
37. Exhibit 2045, filed May 5, 2014 in connection with IPR2013-00517: U.S. Patent No. 6,013,445, issued January 11, 2000 to

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Albrecht et al.;

38. Exhibit 2047, filed May 5, 2014 in connection with IPR2013-00517: Ruparel et al., "Design and synthesis of a 3-O-allyl photocleavable fluorescent nucleotide as a reversible terminator for DNA sequencing by synthesis" PNAS 102:5932-5937 (2005);
39. Exhibit 2050, filed May 5, 2014 in connection with IPR2013-00517: Mardis, "A decade's perspective on DNA sequencing technology" Nature 470:198-203 (2011);
40. Exhibit 2051, filed May 5, 2014 in connection with IPR2013-00517: Meng et al., "Design and Synthesis of a Photocleavable Fluorescent Nucleotide 3'-O-Allyl-dGTP-PC-Bodipy-FL-510 as a Reversible Terminator for DNA Sequencing by Synthesis" J. Org. Chem 71:3248-52 (2006);
41. Exhibit 2052, filed May 5, 2014 in connection with IPR2013-00517: Bi et al., "Design and Synthesis of a Chemically Cleavable Fluorescent Nucleotide, 3'-O-Allyl-dGTP-allyl-Bodipy-FL-510, as a Reversible Terminator for DNA Sequencing by Synthesis" J Am Chem Soc, 128:2542-43 (2006);
42. Exhibit 2053, filed May 5, 2014 in connection with IPR2013-00517: Meng, "Tandem Aldol-Allylation Reactions Promoted by Strained Silacycles and Design and Synthesis of Modified Fluorescent Nucleotides for DNA Sequencing by Synthesis", Student Thesis (2006);
43. Exhibit 2054, filed May 5, 2014 in connection with IPR2013-00517: Wu et al., "3'-O-modified nucleotides as reversible terminators for pyrosequencing" PNAS, 104:16462-67 (2007);
44. Exhibit 2055, filed May 5, 2014 in connection with IPR2013-

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00517: Kim, "Four-Color DNA Sequencing by Synthesis on a Chip Using Cleavable Fluorescent Nucleotide Reversible Terminators", Student Thesis (2008);

45. Exhibit 2056, filed May 5, 2014 in connection with IPR2013-00517: Wu, "Molecular Engineering of Novel Nucleotide Analogues for DNA Sequencing By Synthesis", Student Thesis (2008);

46. Exhibit 2057, filed May 5, 2014 in connection with IPR2013-00517: Zhang, "Development of New DNA Sequencing Approaches and Investigation of Vision-related Proteins Using Synthetic Chemistry", Student Thesis (2008);

47. Exhibit 2058, filed May 5, 2014 in connection with IPR2013-00517: Guo et al., "Four-color DNA sequencing with 3'-O-modified nucleotide reversible terminators and chemically cleavable fluorescent dideoxynucleotides", PNAS 105:9145;

48. Exhibit 2059, filed May 5, 2014 in connection with IPR2013-00517: Guo, "Molecular Engineering of Novel Nucleotide Analogues for DNA Sequencing and Analysis", Student Thesis (2009);

49. Exhibit 2060, filed May 5, 2014 in connection with IPR2013-00517: Yu, "Novel Strategies To Increase Read Length And Accuracy For DNA Sequencing By Synthesis", Student Thesis (2010);

50. Exhibit 2062, filed May 5, 2014 in connection with IPR2013-00517: Qui, "Novel Molecular Engineering Approaches for Genotyping and DNA Sequencing", Student Thesis (2010);

51. Exhibit 2070, filed May 5, 2014 in connection with IPR2013-00517: PCT International Publication No. WO 04/18493,



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published March 4, 2004 to Milton et al.;

52. Exhibit 2071, filed May 5, 2014 in connection with IPR2013-00517: PCT International Publication No. WO 04/18497, published March 4, 2004 to Milton et al.;
53. Exhibit 2072, filed May 5, 2014 in connection with IPR2013-00517: U.S. Patent Application Publication No. 2006/0160081, published July 20, 2006 to Milton et al.;
54. Exhibit 2073, filed May 5, 2014 in connection with IPR2013-00517: Kraevskii et al., "Substrate Inhibitors of DNA Biosynthesis", Molecular Biology 21:25-29 (1987);
55. Exhibit 2074, filed May 5, 2014 in connection with IPR2013-00517: Dantas et al., "Stannous chloride mediates single strand breaks in plasmid DNA through reactive oxygen species formation", Toxicology Ltrs. 110:129-36 (1999);
56. Exhibit 2077, filed May 5, 2014 in connection with IPR2013-00517: Burgess et al., "An Approach to Photolabile, Fluorescent Protecting Groups", J. Org. Chem 62:5165-68 (1997);
57. Petitioner Reply to Patent Owner Response, filed July 28, 2014 in connection with IPR2013-00517;
58. Exhibit 1019, filed July 28, 2014 in connection with IPR2013-00517: Ireland et al., Approach to the Total Synthesis of Chlorothricolide: Synthesis of (+)-19,20-Dihydro-24-O-methylchlorothricolide, Methyl Ester, Ethyl Carbonate, 51 J. Org. Chem. 635 (1986);
59. Exhibit 1020, filed July 28, 2014 in connection with IPR2013-00517: Gordon et al., Abstract, The Relationship of Structure to Effectiveness of Denaturing Agents for DNA,

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Biophysical Society 6th Annual Meeting (Washington, 1962);

60. Exhibit 1022, filed July 28, 2014 in connection with IPR2013-00517: Page 295 from March 20, 2003 deposition of Dr. Xiaohai Liu, The Trustees of Columbia University and Intelligent Bio-Systems, Inc. v. Illumina, 12-376 (GMS) (D. Del.);
61. Exhibit 1025, filed July 28, 2014 in connection with IPR2013-00517: Transcript, July 8, 2014 Deposition of Floyd Romesberg, Ph.D.;
62. Exhibit 1026, filed July 28, 2014 in connection with IPR2013-00517: Transcript, July 15, 2014 Deposition of Kevin Burgess, Ph.D.;
63. Exhibit 1030, filed July 28, 2014 in connection with IPR2013-00517: Patent prosecution excerpt from file history of United States Patent No. 7,566,537 (Application No. 11/301,578);
64. Exhibit 1031, filed July 28, 2014 in connection with IPR2013-00517: Second Declaration of Dr. Bruce Branchaud in Support Of Intelligent Bio-Systems, Inc.'s Reply to Illumina's Patent Owner Response;
65. Exhibit 1032, filed July 28, 2014 in connection with IPR2013-00517: Gololobov and Kasukhin, Recent advances in the Staudinger reaction, Tetrahedron 48:1353-1406 (1992);
66. Exhibit 1034, filed July 28, 2014 in connection with IPR2013-00517: Saxon and Bertozzi, Cell Surface Engineering by a Modified Staudinger Reaction, Science 287:2007-2010 (2000);

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67. Exhibit 1035, filed July 28, 2014 in connection with IPR2013-00517: PCT International Publication No. WO 02/21098, published March 14, 2002 to Stanton et al.;
68. Exhibit 1036, filed July 28, 2014 in connection with IPR2013-00517: Faucher and Grand-Maitre, tris(2-Carboxyethyl)phosphine (TCEP) for the Reduction of Sulfoxides, Sulfonylchlorides, N-Oxides, and Azides, Synthetic Communications 33:3503-3511 (2003);
69. Exhibits 1037 and 1038, filed July 28, 2014 in connection with IPR2013-00517: Knouzi et al., Reductions of Azides by Triphenylphosphine in the presence of water: a General and chemoselective method of access to primary amines, Bull. Soc. Chim. Fr., 1-12 (1985), and translation;
70. Exhibit 1041, filed July 28, 2014 in connection with IPR2013-00517: Mag and Engels, Synthesis and selective cleavage of oligodeoxyribonucleotides containing non-chiral internucleotide phosphoramidate linkages, Nucleic Acids Research 15:5973-5988 (1989);
71. Exhibit 1043, filed July 28, 2014 in connection with IPR2013-00517: Chang and Bollum, Molecular biology of terminal transferase, CRC Critical Reviews in Biochemistry 21:27-52 (1986);
72. Exhibit 1044, filed July 28, 2014 in connection with IPR2013-00517: Chen, DNA polymerases drive DNA sequencing-by-synthesis technologies: both past and present, Frontiers In Microbiology, Vol. 5, Article 305, 1-11 (2014);
73. Exhibit 1045, filed July 28, 2014 in connection with IPR2013-00517: U.S. Patent No. 5,602,000, issued to Hyman on

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February 11, 1997;

74. Exhibit 1046, filed July 28, 2014 in connection with IPR2013-00517: Declaration of Dr. Michael Metzker in Support of Intelligent Bio-Systems, Inc's Reply to Illumina's Patent Owner Response;
75. Exhibit 1047, filed July 28, 2014 in connection with IPR2013-00517: Lebreton et al., Structure-Immunosuppressive Activity Relationships of New Analogues of 15-Deoxyspergualin. 2. Structural Modifications of the Spermidine Moiety, Journal of Medicinal Chemistry 42:4749-4763 (1999);
76. Exhibit 1048, filed July 28, 2014 in connection with IPR2013-00517: Levine et al., The Relationship of Structure to the Effectiveness of Denaturing Agents for Deoxyribonucleic Acid, Biochemistry 2:168-175 (1963);
77. Exhibit 1049, filed July 28, 2014 in connection with IPR2013-00517: Efimov et al., An azidomethyl protective group in the synthesis of oligoribonucleotides by the phosphotriester method, 35:250-253 (2009);
78. Exhibit 1050, filed July 28, 2014 in connection with IPR2013-00517: Kirby, A new method for the isolation of deoxyribonucleic acids: Evidence of the nature of bonds between deoxyribonucleic acids and proteins, Biochemical Journal 66:495-504 (1957);
79. Exhibit 1051, filed July 28, 2014 in connection with IPR2013-00517: Bentley et al., Accurate whole human genome sequencing using reversible terminator chemistry. NATURE

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456:53 (2008) - Supplementary Information;

80. Exhibit 1052, filed July 28, 2014 in connection with IPR2013-00517: U.S. Patent Publication No. 2006/0240439, published October 26, 2006 to Smith et al.;
81. Petitioner Motion to Exclude Evidence, filed September 2, 2014 in connection with IPR2013-00517;
82. Patent Owner Motion to Exclude Evidence, filed September 2, 2014 in connection with IPR2013-00517;
83. Patent Owner Motion for Observations on the Cross-Examination Testimony Of Bruce Branchaud, Ph.D. and Michael Metzker, Ph.D., filed September 2, 2014 in connection with IPR2013-00517;
84. Exhibit 2139, filed September 2, 2014 in connection with IPR2013-00517: Metzker, "Sequencing Technologies - The Next Generation" Nature Reviews Genetics, 11:31-46 (2010);
85. Exhibit 2140, filed September 2, 2014 in connection with IPR2013-00517: Tsai et al., "Versatile and Efficient Synthesis of a New Class of Aza-Based Phosphinic Amide Ligands via Unusual P-C Cleavage" Helvetica Chimica Acta, 89:3007-3017 (2006);
86. Exhibit 2141, filed September 2, 2014 in connection with IPR2013-00517: Treinin, General and Theoretical Aspects, Chapter 1 (pages 1-55) in The Chemistry of the Azido Group (Saul Patai, Ed.) (1971);
87. Exhibit 2142, filed September 2, 2014 in connection with IPR2013-00517: Hanlon, "The Importance of London Dispersion Forces in the Maintenance of the Deoxyribonucleic Acid

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Helix" Biochemical and Biophysical Research Communications,  
23:861-867 (1966);

88. Exhibit 2143, filed September 2, 2014 in connection with  
IPR2013-00517: U.S. Patent Application Publication No.  
2003/0180769, published September 25, 2003 to Metzker;
89. Exhibit 2144, filed September 2, 2014 in connection with  
IPR2013-00517: "Phenol," in The Merck Index, pages 1299-1300  
(13th Ed., 2001);
90. Exhibit 2146, filed September 2, 2014 in connection with  
IPR2013-00517: Metzker, "Emerging technologies in DNA  
sequencing" Genome Research, 15:1767-1776, (2005);
91. Exhibit 2147, filed September 2, 2014 in connection with  
IPR2013-00517: Gardner et al., "Rapid incorporation kinetics  
and improved fidelity of a novel class of 3'-OH unblocked  
reversible terminators" Nucleic Acids Research, 40:7404-7415  
(2012);
92. Exhibit 2148, filed September 2, 2014 in connection with  
IPR2013-00517: Lander et al., "Initial sequencing and  
analysis of the human genome" Nature, 409:860-921 (2001);
93. Exhibit 2150, filed September 2, 2014 in connection with  
IPR2013-00517: Aldrich, Fine Chemicals catalogue, page 1337  
(1986);
94. Exhibit 2151, filed September 2, 2014 in connection with  
IPR2013-00517: Sebastian et al., "Dendrimers with N,N-  
Disubstituted Hydrazines as End Groups, Useful Precursors  
for the Synthesis of Water-Soluble Dendrimers Capped with  
Carbohydrate, Carboxylic or Boronic Acid Derivatives"

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Tetrahedron, 56:6269-6277 (2000);

95. Exhibit 2152, filed September 2, 2014 in connection with IPR2013-00517: Reardon et al., "Reduction of 3'-Azido-3'-deoxythymidine (AZT) and AZT Nucleotides by Thiols" The Journal of Biological Chemistry, 269:15999-16008 (1994);
96. Exhibit 2154, filed September 2, 2014 in connection with IPR2013-00517: Transcript, August 12, 2014 Deposition of Michael L. Metzker, Ph.D.;
97. Exhibit 2155, filed September 2, 2014 in connection with IPR2013-00517: Transcript, August 26, 2014 Deposition of Bruce P. Branchaud, Ph.D.;
98. Petitioner Opposition to Patentee Motion to Exclude Evidence, filed September 15, 2014 in connection with IPR2013-00517;
99. Patentee Opposition to Petitioner Motion to Exclude Evidence, filed September 15, 2014 in connection with IPR2013-00517;
100. Patentee's Reply to Petitioner's Opposition to Patentee Motion to Exclude Evidence, filed September 22, 2014 in connection with IPR2013-00517;
101. Petitioner's Reply to Patentee's Opposition to Motion to Amend, filed September 22, 2014 in connection with IPR2013-00517;
102. Patentee Demonstratives for Oral Hearing, filed October 3, 2014 in connection with IPR2013-00517;

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103. Petitioner Demonstratives for Oral Hearing, filed October 3, 2014 in connection with IPR2013-00517;
104. Transcript of October 10, 2014 Oral Hearing, entered February 2, 2015 in connection with IPR2013-00517; and
105. February 11, 2015 Final Written Decision in connection with IPR2013-00517.

The Examiner is respectfully requested to make these items of record in the subject application by initialing and returning a copy of the enclosed Substitute Form PTO-1449.

The above-identified application claims benefit under 35 U.S.C. §120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now pending, which is a continuation of U.S. Serial No. 13/959,660, filed August 5, 2013, now U.S. Patent No. 9,133,511, issued September 15, 2015, which is a continuation of U.S. Serial No. 13/672,437, filed November 8, 2012, now abandoned, which is a continuation of U.S. Serial No. 13/339,089, filed December 28, 2011, now abandoned, which is a continuation of U.S. Serial No. 12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575, issued January 3, 2012, which is a continuation of U.S. Serial No. 11/810,509, filed June 5, 2007, now U.S. Patent No. 7,790,869, issued September 7, 2010, which is a continuation of U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S. Patent No. 7,345,159, issued March 18, 2008, which is a divisional of U.S. Serial No. 09/972,364, filed October 5, 2001, now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming the benefit of U.S. Provisional Application No. 60/300,894, filed June 26, 2001, and a continuation-in-part of U.S. Serial No. 09/684,670, filed October 6, 2000, now abandoned.



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In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents listed above as items 1-105 need not be provided because such copies have previously been submitted in Information Disclosure Statements, or cited by the U.S. Patent Office, in connection with one or more of U.S. Serial No. 14/670,748, U.S. Serial No. 13/959,660, U.S. Serial No. 13/672,437, U.S. Serial No. 13/339,089, U.S. Serial No. 12/804,284, U.S. Serial No. 11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No. 09/972,364.

This Information Disclosure Statement is being submitted before the mailing of the first Office Action on the merits. In accordance with 37 C.F.R. §1.97(b) no fee is required.

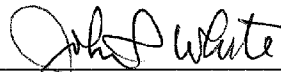
The Examiner is respectfully requested to make the above-listed references of record in the subject application by initialing and dating the attached Substitute PTO-1449 Forms, and returning copies of the initialed and dated PTO-1449 Forms to applicant's undersigned attorney.

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicant's undersigned attorney invites the Examiner to telephone him at the number provided below.

Applicant : The Trustees of Columbia University in the City of New  
York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 17 of 17 of Fourteenth Supplemental Information Disclosure  
Statement

No fee is deemed necessary in connection with the filing of this  
Information Disclosure Statement. However, if any fee is  
required, authorization is hereby given to charge the amount of  
such fee to Deposit Account No. 03-3125.

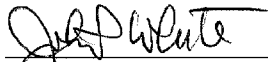
Respectfully submitted,



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**Certificate of Transmission**

I hereby certify that this  
correspondence is being  
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Filing System (EFS) to the U.S.  
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December 19, 2016.



John P. White  
Reg. No. 28,678

/LAYLA D BERRY/

02/07/2017

Substitute Form PTO-1449 (Modified)  <b>Information Disclosure Statement by Applicant</b> (Use several sheets if necessary)  (37 CFR §1.98(b))	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 62239-BZA9/JPW/AC	Application No. 15/380,284
		First Named Inventor Jingyue Ju	Confirmation Number 5757
		Filing Date December 15, 2016	Group Art Unit 1637

U.S. Patent Documents				
Examiner Initial	Cite ID <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM/DD/YYYY	Inventor(s) or Applicant(s)
	3	7,566,537	07-28-2009	Balasubramanian et al.
	12	2012/0052489	03-01-2012	Gordon et al.
	13	2011/0124054	05-26-2011	Olejniak et al.
	14	2010/0159531	06-24-2010	Gordon et al.
	19	5,959,089	09-28-1999	Hannessian
	32	7,279,563	10-09-2007	Kwiatkowski
	37	6,013,445	01-11-2000	Albrecht et al.
	53	2006/0160081	07-20-2006	Milton et al.
	73	5,602,000	02-11-1997	Hyman
	80	2006/0240439	10-26-2006	Smith et al.
	88	2003/0180769	09-25-2003	Metzker
	-			
Unpublished U.S. Patent Documents				
	4	09/684,670	10-06-2000	Ju et al.
	-			

Foreign Patent Documents or Published Foreign Patent Applications						
Examiner Initial	Cite ID <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM/DD/YYYY	Country or Patent Office <sup>3</sup>	Class	T <sup>6</sup>
	5	EP 0251786 B1	11-03-1994	EPO		
	33	WO 96/23807	08-08-1996	WIPO		
	34	WO 93/12340	10-28-1993	WIPO		
	51	WO 04/18493	03-04-2004	WIPO		
	52	WO 04/18497	03-04-2004	WIPO		
	67	WO 02/21098	03-14-2002	WIPO		
	-					

Examiner Signature	Date Considered
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Substitute Disclosure Form (PTO-1449)

Applicant: The Trustees of Columbia University in the City of New York

Serial No.: 15/380,284

Filed: December 15, 2016

Fourteenth SIDS Exhibit A

Page 207 of 233

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B./

Substitute Form PTO-1449 (Modified)  <b>Information Disclosure Statement by Applicant</b> (Use several sheets if necessary)  (37 CFR §1.98(b))	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 62239-BZA9/JPW/AC	Application No. 15/380,284
		First Named Inventor Jingyue Ju	Confirmation Number 5757
		Filing Date December 15, 2016	Group Art Unit 1637

NON PATENT LITERATURE DOCUMENTS		
Examiner Initial	Cite ID <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.
	1	August 19, 2013 Petition 1 of 2 for Inter Partes Review of U.S. Patent No. 7,566,537, issued July 28, 2009
	2	August 30, 2013 Revised Petition 1 of 2 for Inter Partes Review of U.S. Patent No. 7,566,537, issued July 28, 2009
	3	Exhibit 1011, filed August 19, 2013 in connection with IPR2013-00517: August 16, 2013 Declaration of Dr. Bruce Branchaud
	4	Exhibit 1012, filed August 19, 2013 in connection with IPR2013-00517: Excerpts from the March 20, 2013 Deposition Transcript of Dr. Xiaohai Liu
	5	February 13, 2014 Decision of Institution of Inter Partes Review IPR2013-00517
	6	May 5, 2014 Patent Owner Response in connection with IPR2013-00517
	7	Exhibit 2005, filed May 5, 2014 in connection with IPR2013-00517: IBS's Answer, Affirmative Defenses & Counterclaims to Illumina, Inc. and Illumina Cambridge Ltd.'s Second Amended Counterclaims to Amended Complaint, Columbia v. Illumina, No. 12-CV-00376 (D. Del)
	8	August 19, 2013 Petition 1 of 2 for Inter Partes Review of U.S. Patent No. 7,566,537, issued July 28, 2009
	9	August 30, 2013 Revised Petition 1 of 2 for Inter Partes Review of U.S. Patent No. 7,566,537, issued July 28, 2009
	10	Exhibit 1011, filed August 19, 2013 in connection with IPR2013-00517: August 16, 2013 Declaration of Dr. Bruce Branchaud
	15	Exhibit 2010, filed May 5, 2014 in connection with IPR2013-00517: Excerpts from prosecution history of U.S. Patent No. 7,566,537, issued July 28, 2009, Barnes et al.
	16	Exhibit 2011, filed May 5, 2014 in connection with IPR2013-00517: May 5, 2014 Declaration Of Floyd Romesberg, Ph.D.
	17	Exhibit 2013, filed May 5, 2014 in connection with IPR2013-00517: Ranganathan et al., "Facile Conversion of Adenosine into New 2'-Substituted-2'-Deoxy-Arabinofuranosyladenine Derivatives: Stereospecific Syntheses of 2'-Azido-2'-Deoxy-, 2'-Amino-2'-Deoxy-, and 2'-Mercapto-2'-Deoxy-β-D-Arabinofuranosyladenines" Tetrahedron Letters 45:4341-44 (1978)

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		First Named Inventor Jingyue Ju	Confirmation Number 5757
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	18	Exhibit 2014, filed May 5, 2014 in connection with IPR2013-00517: Mungall et al., "Use of the Azido Group in the Synthesis of 5' Terminal Aminodeoxythymidine Oligonucleotides" J. Org. Chem., 40:1659-1662 (1975)
	20	Exhibit 2016, filed May 5, 2014 in connection with IPR2013-00517: Pilard et al., "A Stereospecific Synthesis OF (+), $\alpha$ -Conhydrine and (+) $\beta$ -Conhydrine" Tet. Lett., 25:1555-1556 (1984)
	21	Exhibit 2017, filed May 5, 2014 in connection with IPR2013-00517: "Synthesis of a Novel Stable GM <sub>3</sub> -Lactone Analogue as Hapten for a Possible Immunization against Cancer" Tietze et al., Angew. Chem. Int. Ed., 36:1615, 1616 (1997)
	22	Exhibit 2018, filed May 5, 2014 in connection with IPR2013-00517: Kit, "Deoxyribonucleic Acids" Annual Rev. Biochem, 32:43 (1963)
	23	Exhibit 2019, filed May 5, 2014 in connection with IPR2013-00517: Canard et al., "Catalytic editing properties of DNA polymerases" PNAS USA 92:10859 (1995)
	24	Exhibit 2020, filed May 5, 2014 in connection with IPR2013-00517: The Merck Index, p. 9815 (entry for Triphenylphosphine) (13 <sup>th</sup> Edition, 2001)
	25	Exhibit 2021, filed May 5, 2014 in connection with IPR2013-00517: Lee et al., "Unwinding of double-stranded DNA helix by dehydration" PNAS 78:2838-42 (1981)
	26	Exhibit 2022, filed May 5, 2014 in connection with IPR2013-00517: Christensen et al., "Specific Chemical Synthesis of Ribonucleoside O-Benzyl Ethers" J. Am. Chem. Soc., 37:3398 (1972)
	27	Exhibit 2023, filed May 5, 2014 in connection with IPR2013-00517: Watkins et al., "Synthesis of Oligodeoxyribonucleotides Using N-Benzyloxycarbonyl-Blocked Nucleosides", J. Am. Chem. Soc. 104:5702-08 (1982)
	28	Exhibit 2025, filed May 5, 2014 in connection with IPR2013-00517: Yoshimoto et al., "Tris(2,4,6-trimethoxyphenyl)phosphine (TTMPP): A Novel Catalyst for Selective Deacetylation" Chemistry Letters 30:934-35 (2001)
	29	Exhibit 2026, filed May 5, 2014 in connection with IPR2013-00517: Chapter 3 of Protective Groups in Organic Synthesis (Theodora W. Greene & Peter G. M. Wuts eds., John Wiley & Sons, Inc. 3rd ed. 1999) (1991)

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		First Named Inventor Jingyue Ju	Confirmation Number 5757
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	30	Exhibit 2027, filed May 5, 2014 in connection with IPR2013-00517: Bentley et al., "Accurate whole human genome sequencing using reversible terminator chemistry" Nature 456:53-59 (2008)
	41	Exhibit 2029, filed May 5, 2014 in connection with IPR2013-00517: Shendure et al., "Advanced Sequencing Technologies: Methods And Goals" Nature Reviews Genetics, 5:335-44 (2004)
	35	Exhibit 2039, filed May 5, 2014 in connection with IPR2013-00517: Transcript of April 8, 2014 Deposition of Bruce Branchaud, Ph.D.
	36	Exhibit 2044, filed May 5, 2014 in connection with IPR2013-00517: Excerpts of Transcript of March 20, 2013 Deposition of Dr. Xiaohai Liu in Columbia v. Illumina, 12-cv-376 (D. Del)
	38	Exhibit 2047, filed May 5, 2014 in connection with IPR2013-00517: Ruparel et al., "Design and synthesis of a 3'-O-allyl photocleavable fluorescent nucleotide as a reversible terminator for DNA sequencing by synthesis" PNAS 102:5932-5937 (2005)
	39	Exhibit 2050, filed May 5, 2014 in connection with IPR2013-00517: Mardis, "A decade's perspective on DNA sequencing technology" Nature 470:198-203 (2011)
	40	Exhibit 2051, filed May 5, 2014 in connection with IPR2013-00517: Meng et al., "Design and Synthesis of a Photocleavable Fluorescent Nucleotide 3'-O-Allyl-dGTP-PC-Bodipy-FL-510 as a Reversible Terminator for DNA Sequencing by Synthesis" J. Org. Chem 71:3248-52 (2006)
	41	Exhibit 2052, filed May 5, 2014 in connection with IPR2013-00517: Bi et al., "Design and Synthesis of a Chemically Cleavable Fluorescent Nucleotide, 3'-O-Allyl-dGTP-allyl-Bodipy-FL-510, as a Reversible Terminator for DNA Sequencing by Synthesis" J Am Chem Soc, 128:2542-43 (2006)
	42	Exhibit 2053, filed May 5, 2014 in connection with IPR2013-00517: Meng, "Tandem Aldol-Allylation Reactions Promoted by Strained Silacycles and Design and Synthesis of Modified Fluorescent Nucleotides for DNA Sequencing by Synthesis", Student Thesis (2006)
	43	Exhibit 2054, filed May 5, 2014 in connection with IPR2013-00517: Wu et al., "3'-O-modified nucleotides as reversible terminators for pyrosequencing" PNAS, 104:16462-67 (2007)

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			First Named Inventor Jingyue Ju	Confirmation Number 5757
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	44	Exhibit 2055, filed May 5, 2014 in connection with IPR2013-00517: Kim, "Four-Color DNA Sequencing by Synthesis on a Chip Using Cleavable Fluorescent Nucleotide Reversible Terminators", Student Thesis (2008)
	45	Exhibit 2056, filed May 5, 2014 in connection with IPR2013-00517: Wu, "Molecular Engineering of Novel Nucleotide Analogues for DNA Sequencing By Synthesis", Student Thesis (2008)
	46	Exhibit 2057, filed May 5, 2014 in connection with IPR2013-00517: Zhang, "Development of New DNA Sequencing Approaches and Investigation of Vision-related Proteins Using Synthetic Chemistry", Student Thesis (2008)
	47	Exhibit 2058, filed May 5, 2014 in connection with IPR2013-00517: Guo et al., "Four-color DNA sequencing with 3'-O-modified nucleotide reversible terminators and chemically cleavable fluorescent dideoxynucleotides", PNAS 105:9145
	48	Exhibit 2059, filed May 5, 2014 in connection with IPR2013-00517: Guo, "Molecular Engineering of Novel Nucleotide Analogues for DNA Sequencing and Analysis", Student Thesis (2009)
	49	Exhibit 2060, filed May 5, 2014 in connection with IPR2013-00517: Yu, "Novel Strategies To Increase Read Length And Accuracy For DNA Sequencing By Synthesis", Student Thesis (2010)
	50	Exhibit 2062, filed May 5, 2014 in connection with IPR2013-00517: Qui, "Novel Molecular Engineering Approaches for Genotyping and DNA Sequencing", Student Thesis (2010)
	54	Exhibit 2073, filed May 5, 2014 in connection with IPR2013-00517: Kraevskii et al., "Substrate Inhibitors of DNA Biosynthesis", Molecular Biology 21:25-29 (1987)
	55	Exhibit 2074, filed May 5, 2014 in connection with IPR2013-00517: Dantas et al., "Stannous chloride mediates single strand breaks in plasmid DNA through reactive oxygen species formation", Toxicology Ltrs. 110:129-36 (1999)
	56	Exhibit 2077, filed May 5, 2014 in connection with IPR2013-00517: Burgess et al., "An Approach to Photolabile, Fluorescent Protecting Groups", J. Org. Chem 62:5165-68 (1997)
	57	Petitioner Reply to Patent Owner Response, filed July 28, 2014 in connection with IPR2013-00517

Examiner Signature	Date Considered
<p><b>*EXAMINER:</b> Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</p>	

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		First Named Inventor Jingyue Ju	Confirmation Number 5757
		Filing Date December 15, 2016	Group Art Unit 1637

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Examiner Initial	Cite ID <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.
	58	Exhibit 1019, filed July 28, 2014 in connection with IPR2013-00517: Ireland et al., Approach to the Total Synthesis of Chlorothricolide: Synthesis of (+)-19,20-Dihydro-24-O-methylchlorothricolide, Methyl Ester, Ethyl Carbonate, 51 J. Org. Chem. 635 (1986)
	59	Exhibit 1020, filed July 28, 2014 in connection with IPR2013-00517: Gordon et al., Abstract, The Relationship of Structure to Effectiveness of Denaturing Agents for DNA, Biophysical Society 6th Annual Meeting (Washington, 1962)
	60	Exhibit 1022, filed July 28, 2014 in connection with IPR2013-00517: Page 295 from March 20, 2003 deposition of Dr. Xiaohai Liu, The Trustees of Columbia University and Intelligent Bio-Systems, Inc. v. Illumina, 12-376 (GMS) (D. Del.)
	61	Exhibit 1025, filed July 28, 2014 in connection with IPR2013-00517: Transcript, July 8, 2014 Deposition of Floyd Romesberg, Ph.D.
	62	Exhibit 1026, filed July 28, 2014 in connection with IPR2013-00517: Transcript, July 15, 2014 Deposition of Kevin Burgess, Ph.D.
	63	Exhibit 1030, filed July 28, 2014 in connection with IPR2013-00517: Patent prosecution excerpt from file history of United States Patent No. 7,566,537 (Application No. 11/301,578)
	64	Exhibit 1031, filed July 28, 2014 in connection with IPR2013-00517: Second Declaration of Dr. Bruce Branchaud in Support Of Intelligent Bio-Systems, Inc.'s Reply to Illumina's Patent Owner Response
	65	Exhibit 1032, filed July 28, 2014 in connection with IPR2013-00517: Gololobov and Kasukhin, Recent advances in the Staudinger reaction, Tetrahedron 48:1353-1406 (1992)
	66	Exhibit 1034, filed July 28, 2014 in connection with IPR2013-00517: Saxon and Bertozzi, Cell Surface Engineering by a Modified Staudinger Reaction, Science 287:2007-2010 (2000)
	68	Exhibit 1036, filed July 28, 2014 in connection with IPR2013-00517: Faucher and Grand-Maitre, tris(2-Carboxyethyl)phosphine (TCEP) for the Reduction of Sulfoxides, Sulfonylchlorides, N-Oxides, and Azides, Synthetic Communications 33:3503-3511 (2003)

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		Filing Date December 15, 2016	Group Art Unit 1637

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	69	Exhibits 1037 and 1038, filed July 28, 2014 in connection with IPR2013-00517: Knouzi et al., Reductions of Azides by Triphenylphosphine in the presence of water: a General and chemoselective method of access to primary amines, Bull. Soc. Chim. Fr., 1-12 (1985), and translation
	70	Exhibit 1041, filed July 28, 2014 in connection with IPR2013-00517: Mag and Engels, Synthesis and selective cleavage of oligodeoxyribonucleotides containing non-chiral internucleotide phosphoramidate linkages, Nucleic Acids Research 15:5973-5988 (1989)
	71	Exhibit 1043, filed July 28, 2014 in connection with IPR2013-00517: Chang and Bollum, Molecular biology of terminal transferase, CRC Critical Reviews in Biochemistry 21:27-52 (1986)
	72	Exhibit 1044, filed July 28, 2014 in connection with IPR2013-00517: Chen, DNA polymerases drive DNA sequencing-by-synthesis technologies: both past and present, Frontiers In Microbiology, Vol. 5, Article 305, 1-11 (2014)
	74	Exhibit 1046, filed July 28, 2014 in connection with IPR2013-00517: Declaration of Dr. Michael Metzker in Suppoert of Intelligent Bio-Systems, Inc's Reply to Illumina's Patent Owner Response
	75	Exhibit 1047, filed July 28, 2014 in connection with IPR2013-00517: Lebreton et al., Structure-Immunosuppressive Activity Relationships of New Analogues of 15-Deoxyspergualin. 2. Structural Modifications of the Spermidine Moiety, Journal of Medicinal Chemistry 42:4749-4763 (1999)
	76	Exhibit 1048, filed July 28, 2014 in connection with IPR2013-00517: Levine et al., The Relationship of Structure to the Effectiveness of Denaturing Agents for Deoxyribonucleic Acid, Biochemistry 2:168-175 (1963)
	77	Exhibit 1049, filed July 28, 2014 in connection with IPR2013-00517: Efimov et al., An azidomethyl protective group in the synthesis of oligoribonucleotides by the phosphotriester method, 35:250-253 (2009)

Examiner Signature	Date Considered
<p><b>*EXAMINER:</b> Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</p>	

Substitute Disclosure Form (PTO-1449)

Substitute Form PTO-1449 (Modified)  <b>Information Disclosure Statement by Applicant</b> (Use several sheets if necessary)  (37 CFR §1.98(b))	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 62239-BZA9/JPW/AC	Application No. 15/380,284
		First Named Inventor Jingyue Ju	Confirmation Number 5757
		Filing Date December 15, 2016	Group Art Unit 1637

NON PATENT LITERATURE DOCUMENTS		
Examiner Initial	Cite ID <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.
	78	Exhibit 1050, filed July 28, 2014 in connection with IPR2013-00517: Kirby, A new method for the isolation of deoxyribonucleic acids: Evidence of the nature of bonds between deoxyribonucleic acids and proteins, Biochemical Journal 66:495-504 (1957)
	79	Exhibit 1051, filed July 28, 2014 in connection with IPR2013-00517: Bentley et al., Accurate whole human genome sequencing using reversible terminator chemistry. NATURE 456:53 (2008) - Supplementary Information
	81	Petitioner Motion to Exclude Evidence, filed September 2, 2014 in connection with IPR2013-00517
	82	Patent Owner Motion to Exclude Evidence, filed September 2, 2014 in connection with IPR2013-00517
	83	Patent Owner Motion for Observations on the Cross-Examination Testimony Of Bruce Branchaud, Ph.D. and Michael Metzker, Ph.D., filed September 2, 2014 in connection with IPR2013-00517
	84	Exhibit 2139, filed September 2, 2014 in connection with IPR2013-00517: Metzker, "Sequencing Technologies - The Next Generation" Nature Reviews Genetics, 11:31-46 (2010)
	85	Exhibit 2140, filed September 2, 2014 in connection with IPR2013-00517: Tsai et al., "Versatile and Efficient Synthesis of a New Class of Aza-Based Phosphinic Amide Ligands via Unusual P-C Cleavage" Helvetica Chimica Acta, 89:3007-3017 (2006)
	86	Exhibit 2141, filed September 2, 2014 in connection with IPR2013-00517: Treinin, General and Theoretical Aspects, Chapter 1 (pages 1-55) in The Chemistry of the Azido Group (Saul Patai, Ed.) (1971)
	87	Exhibit 2142, filed September 2, 2014 in connection with IPR2013-00517: Hanlon, "The Importance of London Dispersion Forces in the Maintenance of the Deoxyribonucleic Acid Helix" Biochemical and Biophysical Research Communications, 23:861-867 (1966)
	89	Exhibit 2144, filed September 2, 2014 in connection with IPR2013-00517: "Phenol," in The Merck Index, pages 1299-1300 (13th Ed., 2001)
	90	Exhibit 2146, filed September 2, 2014 in connection with IPR2013-00517: Metzker, "Emerging technologies in DNA sequencing" Genome Research, 15:1767-1776, (2005)

Examiner Signature	Date Considered
<p><b>*EXAMINER:</b> Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</p>	

Substitute Disclosure Form (PTO-1449)

Substitute Form PTO-1449 (Modified)  <b>Information Disclosure Statement by Applicant</b> (Use several sheets if necessary)  (37 CFR §1.98(b))	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 62239-BZA9/JPW/AC	Application No. 15/380,284
		First Named Inventor Jingyue Ju	Confirmation Number 5757
		Filing Date December 15, 2016	Group Art Unit 1637

NON PATENT LITERATURE DOCUMENTS		
Examiner Initial	Cite ID <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.
	91	Exhibit 2147, filed September 2, 2014 in connection with IPR2013-00517: Gardner et al., "Rapid incorporation kinetics and improved fidelity of a novel class of 3'-OH unblocked reversible terminators" Nucleic Acids Research, 40:7404-7415 (2012)
	92	Exhibit 2148, filed September 2, 2014 in connection with IPR2013-00517: Lander et al., "Initial sequencing and analysis of the human genome" Nature, 409:860-921 (2001)
	93	Exhibit 2150, filed September 2, 2014 in connection with IPR2013-00517: Aldrich, Fine Chemicals catalogue, page 1337 (1986)
	94	Exhibit 2151, filed September 2, 2014 in connection with IPR2013-00517: Sebastian et al., "Dendrimers with N,N-Disubstituted Hydrazines as End Groups, Useful Precursors for the Synthesis of Water-Soluble Dendrimers Capped with Carbohydrate, Carboxylic or Boronic Acid Derivatives" Tetrahedron, 56:6269-6277 (2000)
	95	Exhibit 2152, filed September 2, 2014 in connection with IPR2013-00517: Reardon et al., "Reduction of 3'-Azido-3'-deoxythymidine (AZT) and AZT Nucleotides by Thiols" The Journal of Biological Chemistry, 269:15999-16008 (1994)
	96	Exhibit 2154, filed September 2, 2014 in connection with IPR2013-00517: Transcript, August 12, 2014 Deposition of Michael L. Metzker, Ph.D.
	97	Exhibit 2155, filed September 2, 2014 in connection with IPR2013-00517: Transcript, August 26, 2014 Deposition of Bruce P. Branchaud, Ph.D.
	98	Petitioner Opposition to Patentee Motion to Exclude Evidence, filed September 15, 2014 in connection with IPR2013-00517
	99	Patentee Opposition to Petitioner Motion to Exclude Evidence, filed September 15, 2014 in connection with IPR2013-00517
	100	Patentee's Reply to Petitioner's Opposition to Patentee Motion to Exclude Evidence, filed September 22, 2014 in connection with IPR2013-00517
	101	Petitioner's Reply to Patentee's Opposition to Motion to Amend, filed September 22, 2014 in connection with IPR2013-00517

Examiner Signature	Date Considered
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Substitute Disclosure Form (PTO-1449)

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		First Named Inventor Jingyue Ju	Confirmation Number 5757
		Filing Date December 15, 2016	Group Art Unit 1637

## NON PATENT LITERATURE DOCUMENTS

[illegible]

Examiner Signature  /LAYLA D BERRY/	Date Considered  02/07/2017
<p><b>*EXAMINER:</b> Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at <a href="http://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.</p>	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

FIFTEENTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Form PTO-1449 (Substitute) attached hereto as **Exhibit A**.

The items listed below are documents filed in connection with the *Inter Partes* Review of U.S. Patent No. 7,566,537, IPR2013-00518, which was petitioned for by the licensee of the subject application.

1. August 19, 2013 Petition 2 of 2 for Inter Partes Review of U.S. Patent No. 7,566,537, issued August 19, 2013;
2. Exhibit 1015, filed August 19, 2013 in connection with IPR2013-00518: August 16, 2013 Declaration of Dr. Bruce Branchaud;
3. Exhibit 1016, filed August 19, 2013 in connection with IPR2013-00518: Excerpts from the 537 Patent file History;
4. Exhibit 1017, filed August 19, 2013 in connection with

Applicant : The Trustees of Columbia University in the City of New  
York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 2 of 4 of Fifteenth Supplemental Information Disclosure Statement

IPR2013-00518: Excerpts from the file history of European  
Patent Application No: 02781434.2;

5. February 13, 2014 Decision of Institution of Inter Partes  
Review IPR2013-00518;
6. May 5, 2014 Patentee Request for Adverse Judgment in  
IPR2013-00518; and
7. May 6, 2014 Decision of Adverse Judgment in IPR2013-00518.

The Examiner is respectfully requested to make these items of  
record in the subject application by initialing and returning a  
copy of the enclosed Substitute Form PTO-1449.

The above-identified application claims benefit under 35 U.S.C.  
§120 of U.S. Serial No. 14/670,748, filed March 27, 2015, now  
pending, which is a continuation of U.S. Serial No. 13/959,660,  
filed August 5, 2013, now U.S. Patent No. 9,133,511, issued  
September 15, 2015, which is a continuation of U.S. Serial No.  
13/672,437, filed November 8, 2012, now abandoned, which is a  
continuation of U.S. Serial No. 13/339,089, filed December 28,  
2011, now abandoned, which is a continuation of U.S. Serial No.  
12/804,284, filed July 19, 2010, now U.S. Patent No. 8,088,575,  
issued January 3, 2012, which is a continuation of U.S. Serial  
No. 11/810,509, filed June 5, 2007, now U.S. Patent No.  
7,790,869, issued September 7, 2010, which is a continuation of  
U.S. Serial No. 10/702,203, filed November 4, 2003, now U.S.  
Patent No. 7,345,159, issued March 18, 2008, which is a  
divisional of U.S. Serial No. 09/972,364, filed October 5, 2001,  
now U.S. Patent No. 6,664,079, issued December 16, 2003, claiming  
the benefit of U.S. Provisional Application No. 60/300,894, filed  
June 26, 2001, and a continuation-in-part of U.S. Serial No.  
09/684,670, filed October 6, 2000, now abandoned.

Applicant : The Trustees of Columbia University in the City of New  
York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 3 of 4 of Fifteenth Supplemental Information Disclosure Statement

In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents listed above as items 1-7 need not be provided because such copies have previously been submitted in Information Disclosure Statements, or cited by the U.S. Patent Office, in connection with one or more of U.S. Serial No. 14/670,748, U.S. Serial No. 13/959,660, U.S. Serial No. 13/672,437, U.S. Serial No. 13/339,089, U.S. Serial No. 12/804,284, U.S. Serial No. 11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No. 09/972,364.

This Information Disclosure Statement is being submitted before the mailing of the first Office Action on the merits. In accordance with 37 C.F.R. §1.97(b) no fee is required.

The Examiner is respectfully requested to make the above-listed references of record in the subject application by initialing and dating the attached Substitute PTO-1449 Form, and returning copies of the initialed and dated PTO-1449 Form to applicant's undersigned attorney.

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicant's undersigned attorney invites the Examiner to telephone him at the number provided below.

Applicant : The Trustees of Columbia University in the City of New  
York

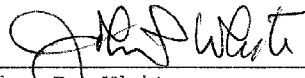
Serial No.: 15/380,284

Filed : December 15, 2016

Page 4 of 4 of Fifteenth Supplemental Information Disclosure Statement

No fee is deemed necessary in connection with the filing of this  
Information Disclosure Statement. However, if any fee is  
required, authorization is hereby given to charge the amount of  
such fee to Deposit Account No. 03-3125.

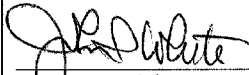
Respectfully submitted,



John P. White  
Registration No. 28,678  
Attorney for Applicant  
Cooper & Dunham LLP  
30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
(212) 278-0400

**Certificate of Transmission**

I hereby certify that this  
correspondence is being  
transmitted via the Electronic  
Filing System (EFS) to the U.S.  
Patent and Trademark Office on  
December 19, 2016.



John P. White  
Reg. No. 28,678

02/07/2017

/LAYLA D BERRY/

Page 220 of 233

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/



<b>Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Jezia Riley
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

### NON PATENT LITERATURE DOCUMENTS

Examiner Initials <sup>a</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
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	5	February 13, 2014 Decision of Institution of Inter Partes Review IPR2013-00518	
	6	May 5, 2014 Patentee Request for Adverse Judgment in IPR2013-00518	
	7	May 6, 2014 Decision of Adverse Judgment in IPR2013-00518	

EXAMINER SIGNATURE /LAYLA D BERRY/

DATE CONSIDERED 02/07/2017

<sup>a</sup>EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

Applicant: The Trustees of Columbia University in the City of New York  
Serial No.: 15/380,284  
Filed: December 15, 2016  
Fifteenth SIDS Exhibit A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284

Filed : December 15, 2016

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
December 19, 2016

By EFS

Commissioner for Patents  
Alexandria, VA 22313-1450

SIXTEENTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Form PTO-1449 (Substitute) attached hereto as **Exhibit A**.

The items listed below are documents filed in connection with the *Inter Partes* Review of U.S. Patent No. 7,566,537, IPR2013-00518, which was petitioned for by the licensee of the subject application.

1. Trustees of Columbia University in the City of New York v. Illumina, Inc., Nos. 2014-1547, 2014-1548, and 2014-1550 (Fed. Cir. Jul. 17, 2015) (**Exhibit 1**);
2. Illumina Cambridge Ltd. v. Intelligent Bio-Systems, Inc., Nos. 2015-1123 and 2015-1243 (Fed. Cir. Jan. 29, 2016) (**Exhibit 2**);
3. Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd., No. 2015-1693 (Fed. Cir. May 9, 2016) (**Exhibit 3**);

Applicant : The Trustees of Columbia University in the City of New  
York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 2 of 3 of Sixteenth Supplemental Information Disclosure Statement

4. Declaration of Michael Metzker in Opposition to Plaintiffs' Motion for Preliminary Injunction, Illumina, Inc. v. Qiagen, N.V., No. 3:16-cv-02788-WHA (N.D. Cal. July 25, 2016) (Doc. 76), first made publicly available August 25, 2016 (**Exhibit 4**);
5. Notice of Motion to Stay Injunction Pending Appeal or, Alternatively, Pending Decision by the Federal Circuit on Stay Pending Appeal, Illumina, Inc. v. Qiagen, N.V., No. 3:16-cv-02788-WHA (N.D. Cal. September 15, 2016) (Doc. 122) (Redacted Version of Document Sought to be Sealed), first made publicly available September 22, 2016 (**Exhibit 5**); and
6. September 23, 2016 Response to May 24, 2016 Communication Pursuant to Article 94(3) EPC filed with the European Patent Office in connection with European Patent Application No. 15195765.1 (**Exhibit 6**).

Copies of the documents listed herein as items 1-6 are attached hereto as **Exhibits 1-6**.

This Information Disclosure Statement is being submitted before the mailing of the first Office Action on the merits. In accordance with 37 C.F.R. §1.97(b) no fee is required.

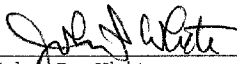
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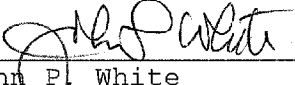
Applicant : The Trustees of Columbia University in the City of New  
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Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 3 of 3 of Sixteenth Supplemental Information Disclosure Statement

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No fee is deemed necessary in connection with the filing of this Information Disclosure Statement. However, if any fee is required, authorization is hereby given to charge the amount of such fee to Deposit Account No. 03-3125.

Respectfully submitted,

<p><b>Certificate of Transmission</b></p> <p>I hereby certify that this correspondence is being transmitted via the Electronic Filing System (EFS) to the U.S. Patent and Trademark Office on <u>December 19, 2016</u>.</p> <p> _____ John P. White Reg. No. 28,678</p>
--

  
\_\_\_\_\_  
John P. White  
Registration No. 28,678  
Attorney for Applicant  
Cooper & Dunham LLP  
30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
(212) 278-0400

/LAYLA D BERRY/

02/07/2017

PTO-1449 (Substitute)  U.S. Department of Commerce Patent and Trademark Office	Application Number	15/380,284
	Filing Date	December 15, 2016
	First Named Inventor	Jingyue Ju
	Art Unit	1637
	Examiner Name	Jezia Riley
Attorney Docket No.		62239-BZA9/JPW/AC

**INFORMATION DISCLOSURE STATEMENT**  
(Use several sheets if necessary)

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
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	4	Declaration of Michael Metzker in Opposition to Plaintiffs' Motion for Preliminary Injunction, Illumina, Inc. v. Qiagen, N.V., No. 3:16-cv-02788-WHA (N.D. Cal. July 25, 2016) (Doc. 76), first made publicly available August 25, 2016	
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	6	September 23, 2016 Response to May 24, 2016 Communication Pursuant to Article 94(3) EPC filed with the European Patent Office in connection with European Patent Application No. 15195765.1	

EXAMINER  
SIGNATURE /LAYLA D BERRY/

DATE CONSIDERED 02/07/2017

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Applicant: The Trustees of Columbia  
University in the City of New York  
Serial No.: 15/380,284  
Filed: December 15, 2016  
Sixteenth SIDS Exhibit A

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284 Examiner: Layla D. Berry

Filed : December 15, 2016 Art Unit: 1673

Conf. No. : 5757

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
May 8, 2017

**BY EFS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**SEVENTEENTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Form PTO-1449 (Substitute) attached hereto as **Exhibit A**.

1. Communication Pursuant to Article 94(3) EPC issued November 10, 2016 in connection with European Patent Application No. 15195765.1 (**Exhibit 1**); and
2. Response to November 10, 2016 Communication Pursuant to Article 94(3) EPC, filed with the European Patent Office on March 20, 2017 in connection with European Patent Application No. 15195765.1 (**Exhibit 2**).

Copies of the documents listed herein as items 1-2 are attached hereto as **Exhibits 1-2**.

This Supplemental Information Disclosure Statement is being submitted under 37 C.F.R. §1.97(c) after the mailing of a first Office Action.

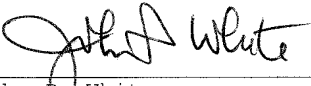
Applicant : The Trustees of Columbia University in the City of New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 2 of 2 of Seventeenth Supplemental Information Disclosure Statement


According to 37 C.F.R. §1.97(c)(2), a Supplemental Information Disclosure Statement filed after the mailing of a first Office Action shall be considered if accompanied by the fee set forth in 37 C.F.R. § 1.17(p). The required fee set forth in 37 C.F.R. § 1.17(p) is ONE HUNDRED AND EIGHTY DOLLARS (\$180.00), and the undersigned hereby authorizes charging this amount (\$180.00) to Deposit Account No. 03-3125.

The Examiner is respectfully requested to make the above-listed references of record in the subject application by initialing and dating the attached Substitute PTO-1449 Form, and returning a copy of the initialed and dated PTO-1449 Form to applicant's undersigned attorney.

No fee, other than the \$180.00 fee for filing a Supplemental Information Disclosure Statement, is deemed necessary in connection with the filing of this Information Disclosure Statement. However, if any additional fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 03-3125.

Respectfully submitted,

<p><b>Certificate of Transmission</b></p> <p>I hereby certify that this correspondence is being transmitted via the Electronic Filing System (EFS) to the U.S. Patent and Trademark Office on <u>May 8, 2017</u>.</p> <p></p> <p>John P. White Reg. No. 28,678</p>
---

  
John P. White  
Registration No. 28,678  
Attorney for Applicant  
Cooper & Dunham LLP  
30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
(212) 278-0400

[illegible]

DATE CONSIDERED 05/19/2017

Applicant: The Trustees of Columbia  
University in the City of New York  
Serial No.: 15/380,284  
Filed: December 15, 2016  
Seventeenth SIDS **Exhibit A**



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : The Trustees of Columbia University in the City  
of New York

Inventors : Jingyue Ju et al.

Serial No.: 15/380,284 Examiner: Layla D. Berry

Filed : December 15, 2016 Art Unit: 1673

Conf. No. : 5757

For : MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

30 Rockefeller Plaza, 20<sup>th</sup> Floor  
New York, NY 10112  
May 26, 2017

**BY EFS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**EIGHTEENTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §1.97(a)-(d), applicant directs the Examiner's attention to the following items listed on the Form PTO-1449 (Substitute) attached hereto as **Exhibit A**.

1. Notice of Allowance issued by the U.S. Patent and Trademark Office on May 26, 2017 in connection with U.S. Serial No. 15/380,270 (**Exhibit 1**); and
2. Notice of Allowance issued by the U.S. Patent and Trademark Office on May 26, 2017 in connection with U.S. Serial No. 15/380,311 (**Exhibit 2**).

Copies of the documents listed herein as items 1-2 are attached hereto as **Exhibits 1-2**.

This Supplemental Information Disclosure Statement is being submitted under 37 C.F.R. §1.97(d) after the mailing of a Notice of Allowance and before payment of the issue fee. According to 37 C.F.R. §1.97(d), a Supplemental Information Disclosure Statement filed after the mailing

Applicant : The Trustees of Columbia University in the City of New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 2 of 3 of Eighteenth Supplemental Information Disclosure Statement

of a Notice of Allowance shall be considered if accompanied by the fee set forth in 37 C.F.R. §1.17(p) and a statement under 37 C.F.R. §1.97(e). The required fee set forth in 37 C.F.R. §1.17(p) is ONE HUNDRED AND EIGHTY DOLLARS (\$180.00), and the undersigned hereby authorizes charging this amount (\$180.00) to Deposit Account No. 03-3125.

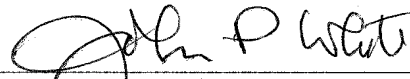
In accordance with 37 C.F.R. §1.97(e)(2), applicant states that no item of information contained in this Supplemental Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making a reasonable inquiry, no item of information contained in this Supplemental Information Disclosure Statement was known to any individual designated in §1.56(c) more than three months prior to the filing of this Supplemental Information Disclosure Statement.

The Examiner is respectfully requested to make the above-listed references of record in the subject application by initialing and dating the attached Substitute PTO-1449 Form, and returning a copy of the initialed and dated PTO-1449 Form to applicant's undersigned attorney.

Applicant : The Trustees of Columbia University in the City of New York  
Serial No.: 15/380,284  
Filed : December 15, 2016  
Page 3 of 3 of Eighteenth Supplemental Information Disclosure Statement

No fee, other than the \$180.00 fee for filing a Supplemental Information Disclosure Statement, is deemed necessary in connection with the filing of this Information Disclosure Statement. However, if any additional fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 03-3125.

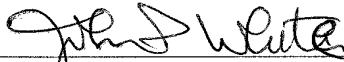
Respectfully submitted,



John P. White  
Registration No. 28,678  
Attorney for Applicant  
Cooper & Dunham LLP  
30 Rockefeller Plaza  
20<sup>th</sup> Floor  
New York, New York 10112  
(212) 278-0400

**Certificate of Transmission**

I hereby certify that this correspondence is being transmitted via the Electronic Filing System (EFS) to the U.S. Patent and Trademark Office on May 26, 2017.



John P. White  
Reg. No. 28,678

<b>PTO-1449 (Substitute)</b> <b>U.S. Department of Commerce</b> <b>Patent and Trademark Office</b>  <b>INFORMATION DISCLOSURE STATEMENT</b> <b>(Use several sheets if necessary)</b>	<b>Application Number</b>	15/380,284
	<b>Filing Date</b>	December 15, 2016
	<b>First Named Inventor</b>	Jingyue Ju
	<b>Art Unit</b>	1637
	<b>Examiner Name</b>	Layla D. Berry
	<b>Attorney Docket No.</b>	62239-BZA9/JPW/AC

## NON PATENT LITERATURE DOCUMENTS

[illegible]

EXAMINER  
SIGNATURE /LAYLA D BERRY/

DATE CONSIDERED : 06/08/2017

\* **EXAMINER:** Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds of Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

Applicant: The Trustees of Columbia  
University in the City of New York  
Serial No.: 15/380,284  
Filed: December 15, 2016  
**Exhibit A**



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/380,284	07/18/2017	9708358	62239-BZA9/JPW/AC	5757

23432 7590 06/28/2017  
COOPER & DUNHAM, LLP  
30 Rockefeller Plaza  
20th Floor  
NEW YORK, NY 10112

## ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

### **Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)** (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

**APPLICANT(s)** (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Jingyue Ju, Englewood Cliffs, NJ;  
The Trustees of Columbia University in the City of New York, New York, NY;  
Zengmin Li, Flushing, NY;  
John Robert Edwards, St. Louis, MO;  
Yasuhiro Itagaki, New York, NY;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit [SelectUSA.gov](http://SelectUSA.gov).