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 20th 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**.

- U.S. Patent No. 5,804,386, issued to Ju on September 8, 1998;
- 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;

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

Page 1 of 233 IPR2018-00322

- 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;
- 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;

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- 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;

Page 3 of 233

- 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;

Page 4 of 233

- 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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- 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;

Page 6 of 233

- 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);

Page 7 of 233

- 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 11/810,509, filed June 5, 2007, now U.S. Patent No. 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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Applicant : The Trustees of Columbia University in the City of New York ' Serial No.: 15/380,284 Filed : December 15, 2016 Page 9 of 10 of Information Disclosure Statement

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. U.S. Serial No. 13/959,660, 14/670,748, 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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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.

NUCAT John P. White

Reg. No. 28,678

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

/LAYLA D BERRY/

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

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

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

Examiner	Cite	Document Number	S. PATENT DOCU	Name of Patentee or Applicant of Cited Document
Initials*	No.1	Number-Kind Code ² (if known)	MM-DD-YYYY	T
	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.

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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ 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 IDS Exhibit A

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

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

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

U.S. PATENT DOCUMENTS							
Examiner Initials*	Cite No.1	Document Number Number-Kind Code ^{2 (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*	Cite No.1	Foreign Patent Document Country Code ³⁻ Number ⁴⁻ Kind Code ^{5 (if known)}	Publication Date MM-DD-YYYY	I Name of ratentee of Applicant of Cheo Document				
	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				
1	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				
EXAMINEF SIGNATUR			DATE CON	SIDERED				

SIGNATURE

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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.

Page 12 of 233

Page 3 of 3

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

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

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			

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

FOREIGN PATENT DOCUMENTS

*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. ⁴ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.

Docket No. 62239-BZA9/JPW/AC

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 20th Floor New York, New York 10112 December 19, 2016

By EFS

Commissioner for Patents Alexandria, VA 22313-1450

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**.

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

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- Notice of Allowance issued September 6, 2007 in connection with U.S. Serial No. 10/702,203 (Exhibit 1);
- Office Action issued June 24, 2008 in connection with U.S. Serial No. 11/894,690;
- 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;
- 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;
- Notice of Allowance issued March 23, 2009 in connection with
 U.S. Serial No. 11/894,808;

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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 Page 3 of 11 of First Supplemental Information Disclosure Statement

- 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;

Page 16 of 233

- 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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Applicant	:	The	Trus	stees	of	Columbia	Uni	iversity	in	the	City	of
		New	York									
Serial No	. :	15/3	80,28	34								
Filed	:	Dece	mber	15, 2	016							
Page 5 d	of	11	of	First	S	upplement	al	Informat	tion	ı Di	sclos	ure
		0	State	ment								

- 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;
- 45. Communication Pursuant to Article 94(3) EPC issued May 24, 2012 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;
- 49. July 9, 2014 Communication accompanying Summons to Attend Oral Proceedings in connection with counterpart European Patent Application No. 07004522.4;
- 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);

Page 19 of 233

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 First Supplemental Information Disclosure Statement

- 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 June13, 2003 in connection with PCT/US01/31243;

Page 20 of 233

- 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;

Page 21 of 233

- 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.

Page 23 of 233

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

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

/LAYLA D BERRY/ Page 24/04723317 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

INFORI	МАТ	ION DISCLOSU	Patent and Tr	ent of Commerce ademark Office	Application Number Filing Date First Named Inventor Art Unit Examiner Name	15/380,284 December 15, 2 Jingyue Ju 1637 Jezia Riley	
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Examiner Initials [*]	Cite No.1	Include name of the	author (in CAPITA nal, serial, symposi	LITERATURE DC L LETTERS), title of th um, catalog, etc.) date, pa nd/or country where pub	e article (when appropria age(s), volume-issue num	ate), title of the item ber(s), publisher, city	T ²
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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

Filed: December 15, 2016 First SIDS Exhibit A Page 25 of 233

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Form P	ГО- 1	449 (Substitute) U.S. Department of Commerce	Application Number	15/380,284
	. 0-1		Filing Date	December 15, 2016
	Patent and Trademark Office		First Named Inventor	Jingyue Ju
			Art Unit	1637
INFORM	MAT	ION DISCLOSURE STATEMENT	Examiner Name	Jezia Riley
(Use sev	eral	sheets if necessary)	Attorney Docket No.	62239-BZA9/JPW/AC
Examiner	Cite	NON PATENT LITERATURE DO		ate), title of the item T^2
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January 11, 2010 Amendment in response to Office Action 17 issued July 10, 2009 in connection with U.S. Serial No.

18 January 26, 2010 Supplemental Amendment in connection with

19 Notice of Allowance and Fee(s) Due issued April 2, 2010 in

20 Office Action issued October 28, 2010 in connection with U.S. Serial No. 12/804, 284

21 Office Action issued February 4, 2011 in connection with

August 4, 2011 Amendment in response to Office Action 22 issued February 4, 2011 in connection with U.S. Serial No.

24 Office Action issued May 8, 2012 in connection with U.S. Serial No. 13/339,089

27 Office Action issued December 1, 2014 in connection with U.S. Serial No. 13/959,660

25 Notice of Abandonment issued September 13, 2013 in

26 Notice of Abandonment issued September 13, 2013 in

connection with U.S. Serial No. 13/672,437

connection with U.S. Serial No. 13/672,437

connection with U.S. Serial No. 11/894,808

23 Notice of Allowance issued September 1, 2011 in connection

connection with U.S. Serial No. 11/810,509

Serial No. 11/810,509

U.S. Serial No. 11/810,509

U.S. Serial No. 12/804,284

with U.S. Serial No. 12/804,284

11/810,509

12/804,284

EXAMINER SIGNATURE

DATE CONSIDERED

28 Amendment after Notice of Allowance filed June 23, 2009 in

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. Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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Page 3 of 6

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Form P.	10-1	449 (Substitute)	*	ent of Commerce	Filing Date	December 15, 2016
			Patent and 1	rademark Office	First Named Inventor	Jingyue Ju
					Art Unit	1637
INFOR	MAT	ION DISCLOSU	JRE STATEM	ENT	Examiner Name	Jezia Riley
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		Serial No. 1	13/959,660		n connection w	
	30	Notice of Al U.S. Serial	llowance is No. 13/959	sued May 3, 2 ,660	015 in connec	ction with
	31	Canadian Pat	ent Applic	ation No. CA		
		17, 2009 in CA 2425112 (connection DA	with Canadia:	cial Action is n Patent Appl:	ication No.
	33	Official Act Canadian Pat	tion issued tent Applic	March 16, 20 ation No. CA	10 in connect: 2425112 OA	ion with
		16, 2010 in CA 2425112 (connection DA	with Canadia	cial Action is n Patent Appl:	ication No.
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		connection v	with Europe	an Patent App	ued July 18, 2 lication No. 9	07004522.4
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	38	14, 2008 in 07004522.4	connection	with Europea	cial Action is n Patent Appl	ication No.
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⁶ Applicant i	s to pla	ce a check mark here if H	English Language Trar	slation is attached.		

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		Patent and Trademark Office	Filing Date	December 15, 2	016
		Tatent and Trademark Office	First Named Inventor	Jingyue Ju	
			Art Unit	1637	
		ION DISCLOSURE STATEMENT	Examiner Name	Jezia Riley	
(Use sev	eral	sheets if necessary)	Attorney Docket No.	62239-BZA9/JPV	W/AC
		NON PATENT LITERATURE DO	DCUMENTS		
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of th (book, magazine, journal, serial, symposium, catalog, etc.) date, p and/or country where pub	age(s), volume-issue num		T ²
	42	October 20, 2010 Response to Commun Article 94(3) EPC issued June 10, 2 counterpart European Patent Applica	012 in connect	ion with	
		Communication Pursuant to Article 9 2011 in connection with counterpart Application No. 07004522.4			4 m
	44	October 11, 2011 Response to Commun Article 94(3) EPC issued April 1, 2 counterpart European Patent Applica	011 in connect	ion with	
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		Communication Pursuant to Article 9 2013 in connection with counterpart Application No. 07004522.4			
		December 31, 2013 Response to Commu Article 94(3) EPC issued June 12, 2 counterpart European Patent Applica	013 in connect	ion with	
	49	July 9, 2014 Communication accompan Oral Proceedings in connection with Patent Application No. 07004522.4	ying Summons t	o Attend	
	50	January 2, 2015 Written Submission counterpart European Patent Applica			
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	52	January 29, 2015 Written Submission counterpart European Patent Applica	in connection tion No. 07004	1 with 1522.4	
	53	February 5, 2015 Communication in co counterpart European Patent Applicat	onnection with tion No. 07004	1 522.4	
	54	March 23, 2015 Decision of Refusal : counterpart European Patent Applica			
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conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

	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	

Examiner Initials*	Cite No. ¹		T ²
	55	June 1, 2015 Notice of Appeal in connection with counterpart European Patent Application No. 07004522.4	
	56	August 3, 2015 Statement of Grounds of Appeal in connection with counterpart European Patent Application No. 07004522.4	
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Form P	0_1	449 (Substitute) U.S. Department of Commerce	Application Number	15/380,284			
	0-1	Patent and Trademark Office	Filing Date		016		
		Fatent and Trademark Office	First Named Inventor	Jingyue Ju			
	Art Unit 1637						
INFORMATION DISCLOSURE STATEMENT Examiner Name Jezia Riley (Use several sheets if necessary) Attorney Docket No. 62239-BZA9/							
Examiner Initials*	No.1						
		International Search Report issued January 23, 2002 in ⁵⁹ 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 1 Authority, or the Declaration issued September 9, 2008 in connection with International Application No. PCT/US06/24157					
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	75	Office Action issued November 14, 2 U.S. Serial No. 10/735,081	2007 in connect	ion with			
	16	Serial No. 10/591,520					
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/LAYLA D BERRY/ 02/07/2017

02/07/2017 Page 30 of 233

Docket No. 62239-BZA9/JPW/AC

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 20th 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**.

- U.S. Patent No. 4,711,955, issued to Ward et al. on December 8, 1987;
- 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;
- 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;

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- U.S. Patent No. 5,174,962, issued to Brennan on December 29, 1992;
- U.S. Patent No. 5,175,269, issued to Stavrianopoulos and Jannis on December 29, 1992;
- 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;

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- 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;

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- 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;

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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

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;

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- 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;

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- 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;

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Applicant		The	Tru	istees	of	Columbia	Un	iversity	in	the	City	of
		New	Yorl	Ś								
Serial No	».:	15/3	80,2	284								
Filed												
Page 8	of	9	of	Second	a s	Supplement	al	Informat	tion	. Di	sclos	ure
			Stat	ement								1

- 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.

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 Attorney for Applicant Cooper & Dunham LLP 30 Rockefeller Plaza 20th Floor New York, New York 10112 (212) 278-0400

/LAYLA D BERRY/

02/07/2017

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Form PTO-1449 (Substitute) U.S. Department of Commerce

Patent and Trademark Office

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

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

Examiner Initials [*]	Cite No.1	Document Number Number-Kind Code ^{2 (if lavown)}	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.
t.	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: 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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 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

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Form PTO-1449 (Substitute) U.S. Department of Commerce

Patent and Trademark Office

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

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		

Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ^{2 (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

*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's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.

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

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

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		

Examiner Initials [*]	Cite No. ¹	Document Number Number-Kind Code ^{2 (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: 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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.

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Docket No. 62239-BZA9/JPW/AC

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 20th 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**.

- U.S. Patent No. 6,335,155, issued to Wells et al. on January 1, 2002;
- U.S. Patent No. 6,361,940, issued to Van Ness et al. on March 26, 2002;
- 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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- U.S. Patent No. 6,555,349, issued to O'Donnell on April 29, 2003;
- U.S. Patent No. 6,613,508, issued to Ness et al. on September 2, 2003;
- U.S. Patent No. 6,613,513, issued to Parce et al. on September 2, 2003;
- 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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- 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;

Page 46 of 233

- 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 Al, Gorenstein et al., published October 27, 2005;
- 50. U.S. Patent Application Publication No. 2006/0003352, Lipkin et al., published January 5, 2006;

Page 47 of 233

- 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;

Page 48 of 233

- 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;

Page 49 of 233

- 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.

Page 51 of 233

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 Attorney for Applicant Cooper & Dunham LLP 30 Rockefeller Plaza 20th Floor New York, New York 10112 (212) 278-0400

/LAYLA D BERRY/ 02/

^{02/}Page³² of 233

Page 1 of 4

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

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

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		

Examiner Initials*	Cite No.1	Document Number Number-Kind Code ^{2 (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.
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	19	6,911,345	06-28-2005	Quake et al.
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- ,,	22	7,037,687	05-02-2006	Williams et al.
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	26	7,057,031	06-06-2006	Olejnik et al.

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.¹ Applicant's unique citation designation number (optional).² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04.³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible.⁶ 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

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Page 2 of 4

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

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

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		

Examiner Initials [*]	Cite No. ¹	Document Number Number-Kind Code ^{2 (if known)}	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	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.
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	38	2003/0022225	01-30-2003	Monforte Joseph A. et al.
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	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.
EXAMINER SIGNATUR	LL K		DATE CONS	· · · · ·

*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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.

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Page 3 of 4

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

INFORMATION DISCLOSURE STATEMENT

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

(Use several sheets if necessary)

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.1	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	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.1	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Т¢

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	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 6
	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	
		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	
	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	
		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	
EXAMINER		DATE CONSIDERED	

EXAMINER SIGNATURE

*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. ¹Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.

Page 55 of 233

Form P	ГО- 1	449 (Substitute)		ent of Commerce	Application Number	15/380,284	010
			Patent and Tr	ademark Office	Filing Date	December 15, 20	010
					First Named Inventor	Jingyue Ju	
INFORM	мат	ION DISCLOSU	RE STATEM	INT	Art Unit	1637	
					Examiner Name	Jezia Riley	7/70
(Use sev	erai	sheets if necessar	<u>y)</u>		Attorney Docket No.	62239-BZA9/JPW	V/AC
		N	ON PATENT I	LITERATURE DC	CUMENTS		
Examiner Initials [*]		Include name of the (book, magazine, jour	nal, serial, symposit	L LETTERS), title of th am, catalog, etc.) date, pa ad/or country where pub	e article (when appropri age(s), volume-issue num lished.	ate), title of the item ber(s), publisher, city	T ⁶
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	75	Internationa connection w	l Search Re with PCT/US	eport issued 1 05/06960	November 4, 20	005 in	
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conformance (optional). ²	e and n See K	ot considered. Include co inds of Codes of USPTO	py of this form with n Patent Documents at y	ext communication to applic www.uspto.gov or MPEP 90	cant. ¹ Applicant's unique of 1.04. ³ Enter Office that is:	itation designation numb sued the document, by the	e two-

Page 36201233

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 20th.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**.

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

Page 57 of 233

- 7. PCT International Application Publication No. WO 94/14972, Hyman, Edward David, published July 7, 1994;
- 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;
- 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;
- 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;
- 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;

Page 58 of 233

- 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;

Page 59 of 233

- 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;

Page 60 of 233

- 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;

Page 61 of 233

- 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.

Page 62 of 233

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. 12/804,284, U.S. 13/339,089, U.S. Serial No. 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.

Page 63 of 233 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

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

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

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

Johr Ρ. White

VNO. 28,678

Reg.

/LAYLA D BERRY/

02/07/2017 Page 64 of 233

Form PTO-1449 (Substitute) U.S. Department of Commerce

Patent and Trademark Office

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

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

Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³⁻ Number ⁴⁻ Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T
	1	WO 1989/09282	10-05-1989	CEMU Bioteknik	
	2	WO 1990/13666	11-15-1990	Amersham International PLC	
	3	WO 1991/06678	05-16-1991	Stanford Research Institute	
	4	W01992/10587	06-25-1992	Affymax Technologies	
	5	WO 1993/05183	03-18-1993	Baylor College of Medicine	
x.	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	
i	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	Γ
	15	WO 1998/44151	10-08-1998	Glaxo Group LTD.	Γ
	16	WO 1999/05315	02-04-1999	Medical Biosystems LTD.	Γ
	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.	Γ
	20	WO 202000/09753	02-24-2000	Caliper Technologies Corp.	Γ
	21	WO 2000/15844	03-23-2000	Incyte Pharmaceuticals, Inc.	
	22	WO 2000/18956	04-06-2000	Stefan Seeger	Γ
	23	WO 2000/21974	04-20-2000	The Perkin-Elmer Foundation	
	24	WO 2000/50172	08-31-2000	Caliper Technologies Corp.	Γ
	25	WO 2000/50642	08-31-2000	Caliper Technologies Corp.	Γ
	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.	

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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 Fourth SIDS Exhibit A

Page 65 of 233

Page 2 of 3

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

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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

Examiner Initials*	Cite No.1	Foreign Patent Document Country Code ³⁻ Number ⁴⁻ Kind Code ^{5 (if known)}	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Т
	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.	Γ
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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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.

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

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

15/380,284
December 15, 2016
Jingyue Ju
1637
Jezia Riĺey
62239-BZA9/JPW/AC

	FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No.1	Foreign Patent Document Country Code ³ Number ⁴⁻ Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Т6	
	55	EP 1182267	02-27-2002	Toyota Jidosha Kabushiki Kaisha		
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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 20th 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**.

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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

Page 77 of 233

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.

Page 78 of 233 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

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

/LAYLA D BERRY/

02/07/2 Plage 79 of 233

Form PTO-1449 (Substitute)	Patent and Trademark Office	Application Number	15/380,284
		Filing Date	December 15, 2016
		First Named Inventor	Jingyue Ju
	Art Unit	1637	
INFORMATION DISCLOSU	Examiner Name	Jezia Ríley	
(Use several sheets if necessar	y)	Attorney Docket No.	62239-BZA9/JPW/AC
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	NON PATENT LITERATURE DOCUMENTS				
Examiner Initials [*]	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, scrial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁶		
	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			
	2	AXELROD, V.D. et al. (1978) ``Specific termination of RNA polymerase synthesis as a method of RNA and DNA sequencing,'' Nucleic Acids Res. 5(10):3549-3563			
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conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant 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 Fifth SIDS Exhibit A

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Tawa D7	<u>101</u>	440 (Substitute) US Department of Commerce	Application Number	15/380,284		
Form PJ	0-1	449 (Substitute) U.S. Department of Commerce	Filing Date	December 15, 201	16	
		Patent and Trademark Office	First Named Inventor	Jingyue Ju		
			Art Unit	1637		
INFORM	ллт	ION DISCLOSURE STATEMENT				
			Examiner Name	Jezia Riley	12.0	
(Use seve	erals	sheets if necessary)	Attorney Docket No.	62239-BZA9/JPW/	/AC	
	NON PATENT LITERATURE DOCUMENTS					
Examiner Initials [*]	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of th (book, magazine, journal, serial, symposium, catalog, etc.) date, pa and/or country where pub	age(s), volume-issue num	ate, the of the term i	T ⁶	
	11	BI, L., KIM D.H., and JU, J. (2006) of a Chemically Cleavable Fluoresce Allyl-dGTP-allyl-Bodipy-FL-510, as for DNA Sequencing by Synthesis" J. 128:2542-2543	nt Nucleotide a Reversible ' Am. Chem. So	, 3'-O- Ferminator 2.,		
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Application Number 15/380,284 Form PTO-1449 (Substitute) U.S. Department of Commerce December 15, Filing Date 2016 First Named Inventor Jingyue Ju Art Unit 1637 **Examiner** Name Jezia Riley 62239-BZA9/JPW/AC Attorney Docket No.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant :	The Trustees of	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 20th 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 10 of 11 of Sixth Supplemental Information Disclosure Statement 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. 13/672,437, U.S. U.S. Serial No. Serial 13/959,660, 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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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 Sixth 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 20th Floor New York, New York 10112 (212) 278-0400

/LAYLA D BERRY/ Page 3/201233 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

Form PTO-1449 (Substitute) U.S. Department of Commerce Application Number 15/380, 284						
	10-1	Patent and Trademark Office	Filing Date	December 15, 2	016	
		ratent and Trademark Office	First Named Inventor	Jingyue Ju		
			Art Unit	1637		
		TON DISCLOSURE STATEMENT	Examiner Name	Jezia Riley		
(Use sev	eral	sheets if necessary)	Attorney Docket No.	62239-BZA9/JP	W/AC	
		NON PATENT LITERATURE DO	CUMENTS			
Examiner	Cite	Include name of the author (in CAPITAL LETTERS), title of th	e article (when annronri	ate), title of the item	T^2	
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		KREČMEROVÁ (1990) "Synthesis of 5'-(O-Phosphonome	thyl		
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	5	sequencing," Nucleic Acids Res. 25:2		IOI DNA		
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		inds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 90 Standard ST.3). ⁴ For Japanese patent documents, the indication of the year			c 1W0-	
		at document. ³ Kind of document by the appropriate symbols as indicated o			ible.	
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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 Sixth SIDS Exhibit A

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-			Application Number	15/380,284	· · · · ·
Form P	F O- 1	(Substitute) Cist Department of Commerce	Filing Date	December 15, 20	16
		Patent and Trademark Office	First Named Inventor	Jingyue Ju	
				1637	
INFOR	лат	ION DISCLOSURE STATEMENT	Art Unit		
			Examiner Name	Jezia Riley	120
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		NON PATENT LITERATURE DO	OCUMENTS		
Examiner Initials [*]	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of th (book, magazine, journal, serial, symposium, catalog, etc.) date, pa and/or country where pub	age(s), volume-issue num	ate), title of the item ber(s), publisher, city	T ²
		LOUBINOUX, B. et al. "Protection Des Groupement Azidomethylene Application	s Phenols Par	Le Se De	
	11	Phenols Instables, " Tetrahedron, 199 (English Abstract Only)	98, 44(19): 6	055	
-	12	LU, G. and BURGESS, K. (2006) "A Div Synthesis of 3'-O-Modified Nucleosic 'Sequencing by Synthesis'" Bioorg. 1 16:3902-3905	de Triphospha Med. Chem. Le	tes for DNA tt.,	
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		MATHEWS C.K. et al. (1985) "Chemica Oligonucleotides," Biochemistry, 2nd	a Edition, pag	f ges 127-128	
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	20	METZKER, M.L. et al. (1994) ``Termin by novel 3' modified deoxyribonucle Nucleic Acids Res. 22: 4259-4267	nation of DNA oside 5' tripl	synthesis hosphates,''	
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*EXAMIN conformance (optional). ² letter code (ER: Ir e and n See K WIPO	itial if citation considered, whether or not citation is in conformance with N tot considered. Include copy of this form with next communication to appli inds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 90 Standard ST.3). ⁴ For Japanese patent documents, the indication of the year it document. ⁵ Kind of document by the appropriate symbols as indicated	cant. ¹ Applicant's unique of 01.04. ³ Enter Office that is r of the reign of the Empero	citation designation number sued the document, by the r must precede the serial	e two-

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

e	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)

Examiner Initials*	Cite No. ¹				
		METZKER M.L. (2005) "Emerging Technologies in DNA Sequencing." Genome Res., 15:1767-1776			
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*EXAMINER: Initial if citation considered, whether of not citation is in conformance with MFEP 605. Draw the inforger citation runte in the inconformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

Page 100 of 233 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

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

·		NON PATENT LITERATURE DOCUMENTS		
Examiner Cite Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the iter Initials [*] No. ¹ (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, of and/or country where published.				
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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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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Form PTO-1449 (Substitute)	U.S. Department of Commerce	Application Number	15/380,284
	Patent and Trademark Office	Filing Date	December 15, 2016
	ratent and Trademark Office	First Named Inventor	Jingyue Ju
×	Art Unit	1637	
INFORMATION DISCLOSU	Examiner Name	Jezia Riley	
(Use several sheets if necessar	(v)	Attorney Decket No.	62239-B739/JPM/AC

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	46	SEEGER (1998) "Single Molecule Fluorescence: High- Performance Molecular Diagnosis and Screening," Bioforum, Git Verlag, Darmstadt, DE Vol. 21, (German text)	
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conformance (optional). ² letter code (number of th	ER: Ir e and n See K WIPO ie pate	DATE CONSIDERED itial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation numb Sinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by th Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial nt document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if poss ice a check mark here if English Language Translation is attached.	e two-

Application Number 15/380,284 Form PTO-1449 (Substitute) U.S. Department of Commerce December 15, 2016 **Filing Date** Patent and Trademark Office First Named Inventor Jingyue Ju Art Unit 1637 INFORMATION DISCLOSURE STATEMENT Jezia Riley Examiner Name (Use several sheets if necessary) Attorney Docket No. 62239-BZA9/JPW/AC NON PATENT LITERATURE DOCUMENTS T^2 Cite Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item Examiner No.¹ (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city Initials* and/or country where published. SPEICHER, M.R., Ballard, S.G., and Ward, D.C. (1996) 52 Waryotyping human chromosomes by combinatorial multi-fluor FISH," Nature Genetics 12: 368-375 STOERKER, J. et al. (2000) "Rapid Genotyping by MALDI-53 monitored nuclease selection from probe Libraries," Nat. Biotech 18:1213-1216 TANG, K., Fu, D.J., Julien, D., Braun, A., Cantor, C.R., 54 and Koster, H. (1999) "Chip-based genotyping by mass spectrometry," Proc. Natl. Acad. Sci. USA. 96:10016-10020 TONG, X. and Smith, L.M. (1992) "Solid-Phase Method for the 55 Purification of DNA Sequencing Reactions," Anal. Chem. 64:2672-2677 TORIMURA et al. (2001) "Fluorescence-Quenching Phenomenon 56 by Photoinduced Electron Transfer between a Fluorescent Dye and Nucleotide Base," Analytical Sciences, 17:155-160 57 TUNCEL et al. (1999) "Catalytically Self-Threading Polyrotaxanes," Chem. Comm. 1509-1510 VEENEMAN et al. (1991) "An Efficient Approach to the 58 Synthesis of Thymidine Derivatives containing Phosphate-Isoteric Methylene Acetyl Linkages," Tetrahedron, 47:1547-1562 WADA et al. (2001) "2-(Azidomethyl)benzoyl as a new 59 protecting group in nucleosides," Tetrahedron Letters, 42:1069-1072 60 WEISS (1999) "Fluorescent Spectroscopy of Single Biomolecules." Science, 283:1676 WELCH et al. (1999) "Synthesis of Nucleosides Designed for 61 Combinatorial DNA Sequencing," Chemistry, European Journal, 5:951-960 WELCH MB, Burgess K, (1999) "Synthesis of fluorescent, 62 photolabile 3'-O-protected nucleoside triphosphates for the base addition sequencing scheme," Nucleosides and Nucleotides 18:197-201 EXAMINER DATE CONSIDERED SIGNATURE *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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.nspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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Form P	TO-1	449 (Substitute) U.S. Department of Commerce	Application Number	15/380,284			
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DIFORM			Art Unit	1637			
		ION DISCLOSURE STATEMENT	Examiner Name	Jezia Riley			
(Use sev	real	sheets if necessary)	Attorney Docket No.	62239-BZA9/JPV	V/AC		
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Initials*	No.1	(book, magazine, journal, serial, symposium, catalog, etc.) date, pa		nber(s), publisher, city			
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Docket No. 62239-BZA9/JPW/AC

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 20th 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.

- September 16, 2012 Petition for Inter Partes Review of U.S. Patent No. 7,713,698, issued May 11, 2010;
- 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;
- 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

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in connection with IPR2012-00006;

- 5. March 26, 2013 Request for Reconsideration in connection with IPR2012-00006;
- April 26, 2013 Opposition to Request for Reconsideration (Rehearing) Under 37 C.F.R. 42.71.(C) in connection with IPR2012-00006;
- May 10, 2013 Decision on Request for Rehearing in connection with IPR2012-00006;
- 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

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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 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 4 of 12 of Seventh Supplemental Information Disclosure Statement 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.;
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- 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 5 of 12 of Seventh Supplemental Information Disclosure Statement 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;
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- 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.;
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- 41. Exhibit 1036, filed September 27, 2013 in connection with IPR2012-00006: "Next Generation Genomics: World Map of Highthroughput 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.

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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 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.;

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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 Page 8 of 12 of Seventh Supplemental Information Disclosure Statement

- 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_chlo ride, 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.;

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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 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

Page 113 of 233

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;
- 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

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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 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. 12/804,284, Serial No. U.S. Serial No. 11/810,509, U.S. Serial No. 10/702,203, or U.S. Serial No. 09/972,364.

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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 Page 12 of 12 of Seventh Supplemental Information Disclosure Statement 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,

Certificate of Transmission Ι hereby certify that this is being correspondence 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 Attorney for Applicant Cooper & Dunham LLP 30 Rockefeller Plaza 20th Floor New York, New York 10112 (212) 278-0400

/LAYLA D BERRY/

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

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

	TUGC I OF C
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

	U.S. PATENT DOCUMENTS					
Examiner Initials*			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.		
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	38	5,449,767	09-12-1995	Ward et al.		
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	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.		
		UNPUBLI	SHED U.S. PATE	NT DOCUMENTS		

UNPUBLISHED U.S. PATENT DOCUMENTS

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

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Examiner Initials' Cite Foreign Patent Document Country Code ³ -Number ⁺ Kind Code ⁵ (if known)		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T ⁶
	14	WO 1991/06678	05-16-1991	SRI INTERNATIONAL	
	18	WO 1996/27025	09-06-1996	Rabani	
19 WO 2000/53805		WO 2000/53805	09-14-2000	ASM SCIENTIFIC, INC.	
22 WO 1998/33939		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 SIGNATUR			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. ¹Applicant's unique citation designation number (optional).² See Kinds of Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 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 Exhibits A Page 11/01 233

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

Examiner Initials [*]	Cite No. ¹	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.	Т
		September 16, 2012 Petition for Inter Partes Review of U.S.	
		Patent No. 7,713,698, issued May 11, 2010	
		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	
		December 20, 2012 Preliminary Response under 37 C.F.R.	
		42.107 in connection with IPR2012-00006	
		March 12, 2013 Decision on Petition for Inter Partes Review	
	4	in connection with IPR2012-00006	
		March 26, 2013 Request for Reconsideration in connection	
-	5	with IPR2012-00006	
		December 20, 2012 Preliminary Response under 37 C.F.R.	
	6	42.107 in connection with IPR2012-00006	
		March 12, 2013 Decision on Petition for Inter Partes Review	
		in connection with IPR2012-00006	
		March 26, 2013 Request for Reconsideration in connection	
		with IPR2012-00006	
		April 26, 2013 Opposition to Request for Reconsideration	
		(Rehearing) Under 37 C.F.R. 42.71.(C) in connection with	
	9	IPR2012-00006	
		September 27, 2013 Petitioner Opposition to Motion to Amend	
		(1) (0)	
		September 27, 2013 Petitioner Reply to Response to Petition	
	11	in connection with IPR2012-00006	
	12	November 18, 2013 Substitute Patent Owner Reply on Motion	
	12	to Amend in connection with IPR2012-00006	
		Exhibit 1003, filed September 16, 2012 in connection with	
		IPR2012-00006: Prober et al. (1987), "A System for Rapid	
	15	DNA Sequencing with Fluorescent Chain-Terminating	
		Dideoxynucleotides", Science Vol. 238, October 16, 1987,	
		pages 336-341	
		Exhibit 1021, filed September 16, 2012 in connection with	
	31	IPR2012-00006: September 15, 2012 Declaration of George	
		Weinstock Under Rule 37 C.F.R. §1.132	
		Exhibit 1022, filed September 16, 2012 in connection with	
	32	IPR2012-00006: Excerpts of File History of U.S. Patent No.	
		7,713,698	
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CAAMINER: 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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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Form PI	O-1		pplication Number	15/380,284
			ling Date	December 15, 201
		Pi Charles Cha		Jingyue Ju 1637
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		A.,	ttorney Docket No.	62239-BZA9/JPW/
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Examiner Initials*	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the a (book, magazine, journal, serial, symposium, catalog, etc.) date, page and/or country where publisl	(s), volume-issue num	
		Exhibit 1025, filed April 30, 2013 in		with
		IPR2012-00006: Columbia's Amended Com		
		Trustees of Columbia University in th		
		Illumina, Inc., D. Del C.A. No. 12-37		
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		Exhibit 1026, filed April 30, 2013 in	connection	with
		IPR2012-00006: Illumina's Answer to A		
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		v. Illumina, Inc., D. Del C.A. No. 12	-370 (GMS),	rited
		December 21, 2012		
		Exhibit 1030, filed June 18, 2013 in	connection w	vith
	36	IPR2012-00006: Rosenblum et al., "New	n Dye-Labelec	l
		Terminators for improved DNA Sequenci	ng Patterns,	" Nucleic
		Acid Research, 1997, Vol. 25, No. 22,	pages 4500-	4504
		Exhibit 1034, filed June 18, 2013 in	connection w	vith
	40	IPR2012-00006: June 8, 2013 Videotape	d Deposition	1
		Transcript of George M. Weinstock, Ph	D.	
		Exhibit 1036, filed September 27, 201	3 in connect	ion with
		IPR2012-00006: "Next Generation Genom		
		High-throughput Sequencers," Septembe		
		Exhibit 1039, filed September 27, 201		ion with
		IPR2012-00006: Videotaped Deposition		
		Xiaohai Liu, March 20, 2013	TTOMOCTTPC C	
			3 in connect	ion with
		Exhibit 1040, filed September 27, 201		
		IPR2012-00006: Excerpt from videotape		
		Transcript of George M. Weinstock, Ph		
		Exhibit 1041, filed September 27, 201		
		IPR2012-00006: Seela et al., "Oligonu)lex
		Stability Controlled by the 7-Substit		
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		Exhibit 1042, filed September 27, 201	3 in connect	ion with
		IPR2012-00006: Ramzaeva et al., "123.	7-Deazaguar	ine DNA:
		Oligonucleotides with Hydrophobic or		
		Helvetica Chimica Acta, Vol. 80, page		
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(optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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Form P	10-1	449 (Substitute) U.S. Department of Commerce	Filing Date	December 15, 2	016		
		Patent and Trademark Office	First Named Inventor	Jingyue Ju			
			Art Unit	1637			
INFOR	MAT	TON DISCLOSURE STATEMENT	Examiner Name	Jezia Riley			
(Use sev	eral	sheets if necessary)	Attorney Docket No.	62239-BZA9/JP	W/AC		
		NON PATENT LITERATURE DO	CUMENTS				
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		Exhibit 1043, filed September 27, 2					
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		Exhibit 1044, filed September 27, 2	013 in connec	tion with			
		IPR2012-00006: Seela et al., "Duple	x Stability o	f			
	48	Oligonucleotides Containing 7-Subst	ituted 7-Deaz	a- and 8-			
		Aza-7-Deazapurine Nucleosides," Nuc	leosides & Nu	cleotides,			
		16(7-9), pages 963-966, 1997					
		Exhibit 1045, filed September 27, 2	013 in connec	tion with			
	49	IPR2012-00006: Burgess et al., "Syntheses of Nucleosides					
	49	Designed for Combinatorial DNA Sequ	encing," Chem	istry - A			
		European Journal, Vol. 5, No. 3, pa					
		Exhibit 1049 filed September 27, 2	013 in connec	tion with			
	50	IPR2012-00006: January 28, 2013 Declaration of Dr. Bruce P.					
	53	Branchaud in Support of Petition for Inter Partes Review of					
		U.S. Patent No. 7,057,026					
		Exhibit 1050, filed September 27, 2	013 in connec	tion with			
		IPR2012-00006: Lee et al., "DNA seq					
		terminators and T7 DNA polymerase:					
	54	on incorporation of dye-terminators					
		analysis of termination fragments,"					
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		Exhibit 1051, filed September 27, 2	013 in connec	tion with			
	55	IPR2012-00006: http://www.answers.c					
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		Exhibit 1052, filed September 27, 2	013 in connec	tion with			
		IPR2012-00006:					
	56	http://en.wikipedia.org/wiki/Fluore	nylmethyloxyc	arbonyl chl			
		oride, Accessed September 27, 2013					
		Exhibit 1053, filed September 27, 2	013 in connec	tion with			
	57	IPR2012-00006: September 27, 2013 D					
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letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents at <u>www.uspto.gov</u> of MPEP 901.04. ⁵ Enter Office that issued the document, by the two letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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Page 5 of 6

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

NON PATENT LITERATURE DOCUMENTS T^6 Cite Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item Examiner No.¹ (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city Initials* and/or country where published. Exhibit 1054, filed September 27, 2013 in connection with IPR2012-00006: Fuji, et al., "An Improved Method for 58 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 Exhibit 2011, filed June 24, 2013 in connection with 62 IPR2012-00006: U.S. Pat. No. 7,713,698 (filed Aug. 20, 2007, issued May 11, 2010) (Exhibit 1001 in IPR2012-00006) Exhibit 2012, filed June 24, 2013 in connection with 63 IPR2012-00006: U.S. Pat. No. 7,790,869 (filed June 5, 2007, issued September 7, 2010) (Exhibit 1001 in IPR2012-00007) Exhibit 2013, filed June 24, 2013 in connection with 64 IPR2012-00006: October 2, 2012 Declaration of George Weinstock Under 37 CFR 1.132 (Exhibit 1021 in IPR2013-00011) Exhibit 2014, filed June 24, 2013 in connection with 65 IPR2012-00006: Petition for Inter Partes Review of U.S. Pat. No. 8,088,575 (Paper 4 in IPR2013-00011) Exhibit 2015, filed June 24, 2013 in connection with 66 IPR2012-00006: Metzker et al. (1994) Termination of DNA synthesis by novel 3'-modified-deoxyribonucleoside 5'triphosphates. Nucleic Acids Res. 22:4259-4267 Exhibit 2016, filed June 24, 2013 in connection with IPR2012-00006: Wu et al. (2007) Termination of DNA 67 synthesis by N6-alkylated, not 3'-O-alkylated, photocleavable 2'-deoxyadenosine triphosphates. Nucleic Acids Res. 35:6339-6349 Exhibit 2017, filed June 24, 2013 in connection with IPR2012-00006: September 15, 2012 Declaration of George 68 Weinstock Under 37 CFR 1.132 (Exhibit 1021 in IPR2012-00007) Exhibit 2018, filed June 24, 2013 in connection with IPR2012-00006: September 15, 2012 Declaration of George 69 Weinstock Under 37 CFR 1.132 (Exhibit 1021 in IPR2012-00006) EXAMINER DATE CONSIDERED SIGNATURE

*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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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

NON PATENT LITERATURE DOCUMENTS T6 Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item Cite Examiner (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city Initials* No.1 and/or country where published. Exhibit 2019, filed June 24, 2013 in connection with 70 |IPR2012-00006: Definition of "DNA microarray." http://en/wikipedia.org/wiki/DNA microarray Exhibit 2020, filed June 24, 2013 in connection with 71 IPR2012-00006: Brettin et al. (2005) Expression capable library for studies of Neisseria gonorrhoeae, version 1.0 BMC Microbiology. 5:50 Exhibit 2021, filed June 24, 2013 in connection with IPR2012-00006: George M. Weinstock, Handbook of Molecular 72 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) Exhibit 2022, filed June 24, 2013 in connection with IPR2012-00006: September 16, 2012 Petition for Inter Partes 73 Review of U.S. Pat. No. 7,713,698 (Paper 3 in IPR2012-00006) Exhibit 2023, filed June 24, 2013 in connection with IPR2012-00006: September 16, 2012 Petition for Inter Partes 74 Review of U.S. Pat. No. 7,790,869 (Paper 5 in IPR2012-00007) Exhibit 2024, filed June 24, 2013 in connection with 75 IPR2012-00006: Maxam and Gilbert (1977) A new method for sequencing DNA, Proc. Natl. Acad. Sci. USA. 74:560-564 02/07/2017 EXAMINER

 SIGNATURE
 /LAYLA
 D
 BERRY /
 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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant 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

30 Rockefeller Plaza 20th Floor New York, New York 10112 December 19, 2016

MASSIVE PARALLEL METHOD FOR DECODING DNA AND RNA

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.

- 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

Page 123 of 233

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);
- 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;

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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 Page 3 of 9 of Eighth Supplemental Information Disclosure Statement

- 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-andscience/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.ilm n;
- 17. Exhibit 2041, filed June 25, 2013 in connection with

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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 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;

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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 Page 5 of 9 of Eighth Supplemental Information Disclosure Statement

- 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

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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 Page 6 of 9 of Eighth Supplemental Information Disclosure Statement 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;
- 42. December 3, 2013 Petitioner Reply to Patent Owner's Opposition to Motion to Exclude in connection with IPR2012-

Page 128 of 233

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 Eighth Supplemental Information Disclosure Statement 00006;

- 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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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 Eighth Supplemental Information Disclosure Statement

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. U.S. Serial 13/672,437, 13/959,660, No. 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

Page 130 of 233

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

/LAYLA D BERRY/

02/07/2017 Page 131 of 233

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

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

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	

		U.S	5. PA	TENT DO	CUMI	ENTS	
Examiner Initials*	Cite No.1	Document Number Number-Kind Code ^{2 (if known)}		lication Date I-DD-YYYY	Na	ame of Patentee or Applicant of Cited Docume	nt
	5	5,302,509	04-	12-1994		Cheeseman	
	7	8,399,188	09-04-2007			Zhao et al.	
		FORF	IGN	PATENT I	DOCT	IMENTS	
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ Number ⁴ Kind Code ⁵		Publication MM-DD-Y	Date	Name of Patentee or Applicant of Cited Document	T ⁶
						OCUMENTS	
Examiner Initials*			mposi		c.) date,	the article (when appropriate), title of the item page(s), volume-issue number(s), publisher, city ublished.	T6
	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					
		Exhibit 2026, filed June 24, 2013 in connection with					
		Exhibit 2027, filed IPR2012-00006: Welc Fluorescent, Photol	l Ju h ar abi he l	ne 24, 2 nd Burge le 3'-O- Base Add	013 ss (Prot itio	1999) Synthesis of ected nucleoside n Sequencing Scheme,	
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x	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					
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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. ¹Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ 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**

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Page 2 of 5

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

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

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		

	NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. ¹	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.	T6			
		Exhibit 2033, filed August 30, 2013 in connection with IPR2012-00006: June 25, 2013 Substitute Declaration of Dr. George L. Trainor [redacted]	c			
	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				
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conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

Page 133 of 233

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

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

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

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lnitials*		(book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	
		Exhibit 2041, filed June 25, 2013 in connection with	
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		experimental evaluation of novel and previously annotated	
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		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	
	20	IPR2012-00006: Prior Testimony of Mr. Raymond S. Sims	
		Exhibit 2045, filed June 25, 2013 in connection with	
	21	IPR2012-00006: Documents reviewed by Mr. Raymond S. Sims in	
		this Proceeding	
	0.0	Exhibit 2052, filed June 25, 2013 in connection with	
	22	Exhibit 2052, filed June 25, 2013 in connection with IPR2012-00006: Gary Schroth Proof of Chiang Paper	
		Exhibit 2074, filed June 25, 2013 in connection with	
		IPR2012-00006: Information about Dr. Ju's intellectual	
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		IPR2012-00006: Excerpt from Protective Groups in Organic	
	27	Synthesis, 3rd Ed. (Theodora W. Greene and Peter G.M. Wuts	
		ed., John Wiley & Sons, Inc. 1999)	
		Exhibit 2094, filed October 1, 2013 in connection with	
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Page 134 of 233

Form P	ГО-1	449 (Substitute)	U.S. Department of Commerce	Application Number	15/380,284		
·			Patent and Trademark Office	Filing Date	December 15, 2016		
				First Named Inventor	Jingyue Ju		
INFOR	мат	TON DISCLOSE	IRF STATEMENT	Art Unit	1637		
INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)				Examiner Name	Jezia Riley 62239-BZA9/JPW/AC		
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	33	November 12,	2013 Patent Owner Moti	on to Exclude	Evidence		
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			, filed November 12, 20				
		IPR2012-00006: Lu and Burgess (2006) "A Diversity Oriented					
	36	Synthesis of 3'-O-modified nucleoside triphosphates for DNA					
		'Sequencing by Synthesis'." Bioorganic & Medicinal					
		Chemistry Le	etters, 16, 3902-3905	10.1	•		
			, filed November 12, 20				
			06: Advanced Sequencing				
			genome.gov/12513162 (acc				
		Exhibit 2103	, filed November 12, 20	13 in connect:	lon with		
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	38		Fluorescent, Photolabi				
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⁶ Applicant i	s to pla	ce a check mark here if E	nglish Language Translation is attached.				

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Form P	ГО-1	449 (Substitute)	U.S. Departm	ent of Commerce	Application Number	15/380,284
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NEOD				ידיזאי	Art Unit	1637
		ION DISCLOSU		LIN L	Examiner Name	Jezia Riley
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 SIGNATURE
 /I.AYI.A D BERRY/
 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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

Page 136 of 233 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

Docket No. 62239-BZA9/JPW/AC

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 20th 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.

- September 16, 2012 Petition for Inter Partes Review of U.S. Patent No. 7,790,869;
- 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;
- 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

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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 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;
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- 9. August 30, 2013 Substitute Patent Owner Response Under 37 C.F.R. 42.120 in connection with IPR2012-00007;
- 10. August 30, 2013 Substitute Patent Owner Motion to Amend Under 37 C.F.R. 42.121 in connection with IPR2012-00007;
- 11. September 27, 2013 Petitioner Opposition to Motion to Amend in connection with IPR2012-00007;
- 12. September 27, 2013 Petitioner Reply to Response to Petition in connection with IPR2012-00007;
- 13. November 18, 2013 Substitute Patent Owner Reply on Motion to Amend in connection with IPR2012-00007;
- 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.

Page 138 of 233

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;

- 16. Exhibit 1053, filed September 27, 2013 in connection with IPR2012-00007: September 27, 2013 Declaration of Kevin Burgess;
- 17. Exhibit 2001, filed December 21, 2012 in connection with IPR2012-00007: Composition of a Nucleotide;
- 18. Exhibit 2033, filed August 30, 2013 in connection with IPR2012-00007: 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 IPR2012-00007;
- 23. November 26, 2013 Patent Owner's Opposition to Petitioner's Motion to Exclude in connection with IPR2012-00007;
- 24. November 26, 2013 Petitioner's Opposition to Motion to Exclude in connection with IPR2012-00007;
- 25. December 3, 2013 Petitioner Reply to Patent Owner's Opposition to Motion to Exclude in connection with IPR2012-00007;

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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
Page 4 of 6	of Ninth Supplemental Information Disclosure Statement

- 26. December 3, 2013 Patent Owner Reply on Motion to Exclude in connection with IPR2012-00007; and
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In accordance with 37 C.F.R. §1.98(d)(1), copies of the documents listed above as items 1-27 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.

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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 Page 5 of 6 of Ninth Supplemental Information Disclosure Statement 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.

Page 141 of 233 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

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

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.

UH4 John/ Ρ. White Reg. No. 28,678

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

/LAYLA D BERRY/

Page⁰P42⁰3f 233⁷

Page 1 of 2

15/380,284

Application Number Form PTO-1449 (Substitute) U.S. Department of Commerce Filing Date December 15, 2016 Patent and Trademark Office Jingyue Ju First Named Inventor Art Unit 1637 INFORMATION DISCLOSURE STATEMENT Jezia Riley Examiner Name (Use several sheets if necessary) 62239-BZA9/JPW/AC Attorney Docket No. **U.S. PATENT DOCUMENTS Publication Date** Name of Patentee or Applicant of Cited Document **Document** Number Cite Examiner Number-Kind Code² (if known) Initials* No.1 MM-DD-YYYY 09 - 07 - 2010Ju et al. 14 7,790,869 FOREIGN PATENT DOCUMENTS Name of Patentee or Applicant of Cited Тб Foreign Patent Document **Publication Date** Cite Examiner Document Country Code³⁻Number⁴⁻Kind Code⁵ (if known) MM-DD-YYYY Initials* No.1 NON PATENT LITERATURE DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item Examiner Cite **T**⁶ (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city Initials' No.1 and/or country where published. September 16, 2012 Petition for Inter Partes Review of U.S. 1 Patent No. 7,790,869 September 17, 2012 Motion to Waive Page Limit and Proposed Petition in connection with Petition for Inter Partes 2 Review of U.S. Patent No. 7,790,869 December 21, 2012 Preliminary Response under 37 C.F.R. 3 42.107 in connection with IPR2012-00007 March 12, 2013 Decision on Petition for Inter Partes Review 4 in connection with IPR2012-00007 March 26, 2013 Request for Reconsideration in connection 5 with IPR2012-00007 March 26, 2013 Request for Rehearing under 37 C.F.R. 42.71 of Decision to Institute Inter Partes Review in connection 6 with IPR2012-00007 April 26, 2013 Opposition to Request for Reconsideration (Rehearing) Under 37 C.F.R. 42.71.(C) in connection with 7 IPR2012-00007 May 10, 2013 Decision on Request for Rehearing in 8 connection with IPR2012-00007 August 30, 2013 Substitute Patent Owner Response Under 37 9 C.F.R. 42.120 in connection with IPR2012-00007 August 30, 2013 Substitute Patent Owner Motion to Amend 10 Under 37 C.F.R. 42.121 in connection with IPR2012-00007 September 27, 2013 Petitioner Opposition to Motion to Amend 11 in connection with IPR2012-00007 DATE CONSIDERED EXAMINER SIGNATURE 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. Applicant's unique citation designation number (optional). 2 See Kinds of Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 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

Page 143 of 233

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⁶Applicant is to place a check mark here if English Language Translation is attached.

Page 144 of 233
Docket No. 62239-BZA9/JPW/AC

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 20th 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.

- October 3, 2012 Petition for Inter Partes Review of U.S.
 Patent No. 8,088,575;
- 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;
- 3. January 7, 2013 Preliminary Response under 37 C.F.R. 42.107 in connection with IPR2013-00011;
- 4. March 12, 2013 Decision on Petition for Inter Partes Review

Page 145 of 233

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 Tenth Supplemental Information Disclosure Statement in connection with IPR2013-00011;

5. March 26, 2013 Request for Reconsideration in connection with IPR2013-00011;

- 6. March 26, 2013 Request for Rehearing under 37 C.F.R. 42.71 of Decision to Institute Inter Partes Review in connection with IPR2013-00011;
- 7. April 26, 2013 Opposition to Request for Reconsideration (Rehearing) Under 37 C.F.R. 42.71.(C) in connection with IPR2013-00011;
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- 10. August 30, 2013 Substitute Patent Owner Response Under 37 C.F.R. 42.120 in connection with IPR2013-00011;
- 11. September 27, 2013 Petitioner Opposition to Motion to Amend in connection with IPR2013-00011;
- 12. September 27, 2013 Petitioner Reply to Response to Petition in connection with IPR2013-00011;
- 13. November 18, 2013 Substitute Patent Owner Reply on Motion to Amend in connection with IPR2013-00011;
- 14. Exhibit 1001, filed October 3, 2012 in connection with IPR2013-00011: U.S. Patent No. 8,088,575 issued January 3, 2012 to Ju et al.;
- 15. Exhibit 1021, filed October 3, 2012 in connection with IPR2013-00011: October 2, 2012 Declaration of George

Page 146 of 233

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 Tenth Supplemental Information Disclosure Statement

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

- 16. Exhibit 1022, filed October 3, 2012 in connection with IPR2013-00011: Excerpts of File History of U.S. Patent No. 8,088,575;
- 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 IPR2013-00011;
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- 21. November ⁽12, 2013 Patent Owner Motion to Exclude Evidence in connection with IPR2013-00011;
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- 25. December 3, 2013 Petitioner Reply to Patent Owner's Opposition to Motion to Exclude in connection with IPR2013-00011;

Page 147 of 233

Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 4 of 6 of Tenth Supplemental Information Disclosure Statement

- 26. December 3, 2013 Patent Owner Reply on Motion to Exclude in connection with IPR2013-00011 (Exhibit 1); and
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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.

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Page 148 of 233

Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 5 of 6 of Tenth Supplemental Information Disclosure Statement 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.

Page 149 of 233 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 6 of 6 of Tenth 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. White No. 28,678 John P. White Registration No. 28,678 Attorney for Applicant Cooper & Dunham LLP 30 Rockefeller Plaza 20th Floor New York, New York 10112 (212) 278-0400

/LAYLA D BERRY/

Page 150 of 2/337/2017

Page 1 of 2

Form P7	TO-1					Filing Date December 15, 2	016
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	2	October 3, 2012 Motion to Waive Page Limit and Proposed Petition in connection with Petition for Inter Partes					
	3	January 7, 2013 Preliminary Response under 37 C.F.R. 42.107					
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	10	August 30, 2013	Substi	tute Pat			
	11	September 27, 20)13 Pet:	itioner	Oppos		
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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. ¹Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ 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 Tenth SIDS Exhibit A

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December 15, 2016

15/380,284

Form PTO-1449 (Substitute) U.S. Department of Commerce Patent and Trademark Office First Named Inventor Art Unit

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

 First Named Inventor
 Jingyue Ju

 Art Unit
 1637

 Examiner Name
 Jezia Riley

 Attorney Docket No.
 62239-BZA9/JPW/AC

	-	NON PATENT LITERATURE DOCUMENTS	
Examiner Initials [*]		(book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T
		September 27, 2013 Petitioner Reply to Response to Petition in connection with IPR2013-00011	
•	13	November 18, 2013 Substitute Patent Owner Reply on Motion to Amend in connection with IPR2013-00011	
	15	Exhibit 1021, filed October 3, 2012 in connection with IPR2013-00011: October 2, 2012 Declaration of George Weinstock Under Rule 37 C.F.R. §1.132	
	16	Exhibit 1022, filed October 3, 2012 in connection with IPR2013-00011: Excerpts of File History of U.S. Patent No. 8,088,575	
	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	
		November 12, 2013 Patent Owner Motion to Exclude Evidence	
τ		November 26, 2013 Petitioner's Response to Motion for Observations in connection with IPR2013-00011	
		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	
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number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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Docket No. 62239-BZA9/JPW/AC

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 20th 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.

- January 29, 2013 Petition for Inter Partes Review of U.S. Patent No. 7,057,026;
- 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;

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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 Page 2 of 11 of Eleventh Supplemental Information Disclosure Statement

- 5. October 24, 2013 Patent Owner Motion to Amend the Patent in connection with IPR2013-00128;
- 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;
- 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 3 of 11 of Eleventh Supplemental Information Disclosure Statement 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

Page 155 of 233

Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 4 of 11 of Eleventh Supplemental Information Disclosure Statement 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 5 of 11 of Eleventh Supplemental Information Disclosure Statement 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 6 of 11 of Eleventh Supplemental Information Disclosure Statement

- 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 Ca²⁺-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-Dinitrobenzenesulfenyl 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-carboxyethy1)phosphine" J. Org. Chem., 56:2648-50 (1991);
- 47. February 19, 2014 Substitute Motion To Amend Under 37 C.F.R.

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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 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.;

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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 Page 8 of 11 of Eleventh Supplemental Information Disclosure Statement

- 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

Page 160 of 233

Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 9 of 11 of Eleventh Supplemental Information Disclosure Statement 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 10 of 11 of Eleventh Supplemental Information Disclosure Statement

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. 13/672,437, U.S. Serial 13/959,660, U.S. Serial No. 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

Page 162 of 233

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,

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 Attorney for Applicant Cooper & Dunham LLP 30 Rockefeller Plaza 20th Floor New York, New York 10112 (212) 278-0400

Form Pl	ГО-14	49 (Substitute)	U.S. Department of Commerce	Application Number	15/380,284	
p 01 m 1 .	Filing Date December 15, 2016 Filing Date December 15, 2016 First Named Inventor Jingyue Ju MATION DISCLOSURE STATEMENT Art Unit 1637 Examiner Name Jezia Riley					
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			atent and Trademark Office Filing Date December 15, 2016 First Named Inventor Jingyue Ju Art Unit 1637 Examiner Name Jezia Riley Attorney Docket No. 62239-BZA9/JPW/AC PATENT LITERATURE DOCUMENTS m2			
Patent and Trademark Of INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary) NON PATENT LITERATUR	RE STATEMENT	Examiner Name	Jezia Riley			
(Use sev	NFORMATION DISCLOSURE STATEMENT Use several sheets if necessary)	Attorney Docket No.	62239-BZA9/JP	W/AC		
	r					<u></u>
Examiner	Cite	Include name of the	author (in CAPITAL LETTERS), title of th	e article (when appropri	iate), title of the item	12

Examiner Initials*	Cite No.1	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 ²
		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	
	5	October 24, 2013 Patent Owner Motion to Amend the Patent in connection with IPR2013-00128	
	6	Exhibit 1006, filed January 29, 2013 in connection with IPR2013-00128: Beckman Coulter CEQTM 2000 DNA Analysis System User's Guide, June 2000	
	7	Exhibit 1010, filed January 29, 2013 in connection with IPR2013-00128: Kamal, Tetrahedron Letters 40(2):371-372, 1999	
		Exhibit 1011, filed January 29, 2013 in connection with IPR2013-00128: Jung, J.C.S. Chem. Comm. (7):315-316, 1978	
	9	Exhibit 1015, filed January 29, 2013 in connection with IPR2013-00128: January 28, 2013 Declaration of Dr. Bruce Branchaud	
	10	Exhibit 1016, filed January 29, 2013 in connection with IPR2013-00128: Excerpts from the `026 Patent File History	
		Exhibit 1020, filed January 29, 2013 in connection with IPR2013-00128: Transcript of Initial Conference Call Held on August 29, 2013	
		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	
		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	
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conformance and not considered, whence of hot citation is in contonance with the PE 009. Draw the unough citation in hot in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible: ⁶Applicant 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

Page 164 of 233

Form P	ТО-1	449 (Substitute) U.S. Department of Commerce	Application Number	15/380,284	
		Patent and Trademark Office	Filing Date First Named Inventor	December 15, 2 Jingyue Ju	016
			Art Unit	1637	
INFOR	МАТ	ION DISCLOSURE STATEMENT	Examiner Name	Jezia Riley	
(Use sev	eral	sheets if necessary)	Attorney Docket No.	62239-BZA9/JPV	W/AC
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	14	Exhibit 2003, filed May 1, 2013 in 00128: The Trustees of Columbia Uni New York v. Illumina, Inc., 1:12-cv Responses to Illumina's Requests fo	connection wi versity in th -00376-GMS- I	e City of	
	15	January 29, 2013 Petition for Inter Patent No. 7,057,026			
~	16	February 7, 2013 Revised Petition for 0.S. Patent No. 7,057,026	or Inter Part	es Review	
	17	May 1, 2013 Preliminary Response unc connection with IPR2013-00128	der 37 C.F.R.	42.107 in	
	18	July 29, 2013 Decision on Petition in connection with IPR2013-00128	for Inter Par	tes Review	
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	20	Exhibit 2004, filed May 1, 2013 in 0 00128: The Trustees of Columbia Uni New York v. Illumina, Inc., 1:12-cv Responses to Illumina's Requests fo	versity in th -00376-GMS- C	e City of	
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	23	Exhibit 1029, filed January 24, 201 IPR2013-00128: January 9, 2014 Subs Floyd Romesberg, Ph.D.			
	24	Exhibit 2012, filed October 24, 201 IPR2013-00128: 2013-10-03 Deposition Branchaud, Ph.D.			
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*EXAMIN conformanc	ER: In e and n	itial if citation considered, whether or not citation is in conformance with N ot considered. Include copy of this form with next communication to appli inds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 90	cant. ¹ Applicant's unique	citation designation numb	

letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents at <u>www.uspro.gov</u> of MF2F 901.04. Enter Once that issued the document, by the twoletter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

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

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.1	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 ²
	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	
		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)	
		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	
		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	
		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)	
EXAMINEI SIGNATUR	E	DATE CONSIDERED	
conformance (optional). ²	e and n ² See K	itial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in ot considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation numb inds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the standard ST 3). ⁴ Eor Japanese patent documents the indication of the year of the reign of the Emperor must precede the serial	e two-

number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

Form P7	[O-1]	449 (Substitute) U.S. Department of Commerce	Application Number	15/380,284			
	.~ 1	Patent and Trademark Office	Filing Date	December 15, 201	16		
		i atont and i ratemark Office	First Named Inventor	Jingyue Ju			
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		ION DISCLOSURE STATEMENT	Examiner Name	Jezia Riley			
Use seve	eral	sheets if necessary)	Attorney Docket No.	62239-BZA9/JPW/	/AC		
		NON PATENT LITERATURE D	OCUMENTS				
Examiner Initials*	Cite No. ¹						
		Exhibit 1032 filed January 24 201	4 in connectio	on with			
		IPR2013-00128: Mitra et al., "Fluor	escent in situ	1			
	35	sequencing on polymerase colonies"	Analytical Bio	ochem. 320,			
		55-65 (2003)		,			
		Exhibit 1033, filed January 24, 201	4 in connectio	on with			
	36	IPR2013-00128: Deposition of Floyd					
		January 14, 2014	5,				
		Exhibit 1034, filed January 24, 201	4 in connectio	on with			
		IPR2013-00128: 1999/2000 Pierce Che					
	5,	(1999)	ing our oonipany	oucuog			
		Exhibit 1035, filed January 24, 201	4 in connectio	on with			
		IPR2013-00128: Second Declaration of					
		dated January 23, 2014	, DI DI UCC D.	-unenaudy			
		Exhibit 1039, filed January 24, 201	/ in connectiv	op with			
		IPR2013-00128: Excerpts from the fi					
	39	Patent Application No: 02781434.2	Te miscory or	European			
		Exhibit 1041, filed January 24, 201	1 in connecti	n with			
		IPR2013-00128: Lukesh et al., "A Po					
		Disulfide-Reducing Agent from Aspar					
			LIC ACIA J. I	an. chem.			
		Soc., 134, 4057-59 (2012)	A				
		Exhibit 1042, filed January 24, 201					
	41	IPR2013-00128: Klausner, "Dupont's	DNA Sequencer	USES NEW			
		Chemistry" Nat. Biotech., 5, 1111-1		1 + 1			
		Exhibit 1043, filed January 24, 201					
		IPR2013-00128: Murakami et al., "St					
		yoelii gene-encoded protein homolog					
		of rabbit skeletal muscle sarcoplas	mic reticulum'	J. Cell			
		Sci., 97, 487-95 (1990)					
		Exhibit 1044, filed January 24, 201		on with			
		IPR2013-00128: Letsinger et al., "2					
	43	Dinitrobenzenesulfenyl as a Blockin					
		Functions in Nucleosides" J. Org. C	hem., 29, 261	5-2618			
		(1964)	·	1			
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letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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

NON PATENT LITERATURE DOCUMENTS	
Examiner Cite Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the Initials No. ¹ (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), published and/or country where published.	item er, city
Exhibit 1045, filed January 24, 2014 in connection with	
TPR2013-00128: Handlon & Oppenheimer, "Thiol Reduction o	f '
44 3'-Azidothymidine to 3'-Aminothymidine: Kinetics and	
Biomedical Implications" Pharm. Res., 5, 297-99 (1988)	
Exhibit 1030, filed January 24, 2014 in connection with	
IPR2013-00128: Dawson et al., "Affinity Isolation of	
45 Transcriptionally Active Murine Erythroleukemia Cell DNA	
Using a Cleavable Biotinylated Nucleotide Analog" J. of	
Biol. Chem., 264, 12830-37 (1989)	
Exhibit 1047, filed January 24, 2014 in connection with	
TPR2013-00128. Burns et al., "Selective Reduction of	
46 Disulfides by Tris(2-carboxyethy1)phosphine" J. Org. Cher	m.,
56, 2648-50	
Takawany 10, 2014 Substitute Metion To Amond Under 37	
47 C.F.R. \$42.121	
Exhibit 2009, filed February 19, 2014 in connection with	
48 IPR2013-00128: Substitute Declaration of Floyd Romesberg	
Ph.D., in Support of Patent Owner's Motion to Amend	
Exhibit 2028, filed February 19, 2014 in connection with	
49 IPR2013-00128: Substitute Declaration Of Eric Vermaas	
Accompanying Patent Owner's Motion To Amend	
February 24, 2014 Patent Owner Illumina's Reply To	
⁵⁰ Petitioner's Opposition To Illumina's Motion To Amend	
Exhibit 2029, filed February 24, 2014 in connection with	
51 IPR2013-00128: Supplementary information for Ex. 1032	
(Mitra et al., Analytical Biochem. 320, 55-65, 2003)	
Exhibit 2032, filed February 24, 2014 in connection with	
52 IPR2013-00128: ScanArray Express Line of Microarray	
Scanners - Brochure	
Exhibit 2034, filed February 24, 2014 in connection with	
53 IPR2013-00128: February 11, 2014 Second Deposition	
Transcript of Bruce Branchaud, Ph.D.	
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IGNATURE DATE CONSIDERED	
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ontional). ² See Kinds of Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the docume	nt, by the tw
tter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the umber of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.1	ne serial
Applicant is to place a check mark here if English Language Translation is attached.	o n possible

Page 168 of 233 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

⁶Applicant is to place a check mark here if English Language Translation is attached.

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

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

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

Examiner Initials [*]	Cite No.1	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
		Exhibit 2037, filed February 24, 2014 in connection with	
		IPR2013-00128: Mullis et al., "Specific Synthesis of DNA in	
	54	Vitro via a Polymerase-Catalyzed Chain Reaction," pp. 335-	ľ
		350, in Methods in Enzymology, Volume 155, Recombinant DNA,	
		Part F, ed. Wu, Academic Press, Inc., San Diego (1987)	
		Exhibit 2038, filed February 24, 2014 in connection with	
		IPR2013-00128: Brown et al., "Modern machine-aided methods	Ì
		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)	
		Exhibit 2039, filed February 24, 2014 in connection with	
		TPR2013-00128. Dawson and Herman et al., "Affinity	
		isolation of active murine erythroleukemia cell chromatin:	
	56	Uniform distribution of ubiquitinated histone H2A between	ĺ
		active and inactive fractions", Journal of Cellular	
		Biochemistry 46:166-173 (1991)	
		Exhibit 1047, filed January 24, 2014 in connection with	
		IPR2013-00128: Burns et al., "Selective Reduction of	
	57	Disulfides by Tris(2-carboxyethy1)phosphine" J. Org. Chem.,	
		56, 2648-50	
		February 19, 2014 Substitute Motion To Amend Under 37	
	58	C.F.R. \$42.121	
		Exhibit 2009, filed February 19, 2014 in connection with	
		IPR2013-00128: Substitute Declaration of Floyd Romesberg,	ĺ
		Ph.D., in Support of Patent Owner's Motion to Amend	
		Exhibit 2040, filed February 24, 2014 in connection with	
		IPR2013-00128: Rigas et al., "Rapid plasmid library	
	60	screening using RecA-coated biotinylated probes," PNAS USA	
	-	83:9591-9595 (1986)	ĺ
		Exhibit 2041, filed February 24, 2014 in connection with	
		IPR2013-00128: U.S. Patent No. 4,888,274, issued December	ł
		19, 1989 to Radding et al.	
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		itial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in ot considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number	ver
optional). ²	See K	inds of Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the	e tw
		Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial $\frac{1}{2}$ Kind of document by the concentrate numbers of indicated on the document under WIPO Standard ST 16 if page	
		nt document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possi ce a check mark here if English Language Translation is attached.	1010

Form P	FO-1	449 (Substitute) U.S. Department of Commerce	Application Number	15/380,284	
1 OI III I		Patent and Trademark Office	Filing Date	December 15, 2016	16
		Fatent and Trademark Office	First Named Inventor	Jingyue Ju	
			Art Unit	1637	
INFORM	MAT	ION DISCLOSURE STATEMENT	Examiner Name	Jezia Riley	
(Use sev	eral	sheets if necessary)	Attorney Docket No.	62239-BZA9/JPW/AG	
		NON PATENT LITERATURE DO	DCUMENTS		
ExaminerCiteInclude name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the itemInitials*No.1(book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.		ate), title of the item .ber(s), publisher, city	T ²		
	62	Exhibit 2042, filed February 24, 20 IPR2013-00128: Westheimer et al., " phosphates" Science 235:1173-1178 (Why nature ch 1987)	ose	
	63	March 18, 2014 Petitioner's Motion with IPR2013-00128 (Exhibit 82)	to Exclude in	connection	
		Exhibit 1048, filed March 18, 2014	in connection	with	

		and/or country where published.	
	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)	
		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	
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*EXAMIN conformanc	ER: Ir e and n	nitial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation numb inds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the	e two-

letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant 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 20th 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.

- May 4, 2013 Petition for Inter Partes Review of U.S. Patent No. 8,158,346, issued April 17, 2012;
- 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-

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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 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;
- 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

Page 172 of 233

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 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

Page 173 of 233

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 Twelfth Supplemental Information Disclosure Statement

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;
- Exhibit 2043, filed March 21, 2014 in connection with 26. IPR2013-00266: English translation of Loubinoux et al., "Protection Of Phenols Ву The Azidomethylene Group Application The Synthesis Of Unstable То 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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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 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 N⁶-alkylated, not 3'-0-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, biotinyltoxin, 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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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 Twelfth Supplemental Information Disclosure Statement

\$\phiX174 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;

Page 176 of 233

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 Twelfth Supplemental Information Disclosure Statement

- 44. April 18, 2014 Patențee 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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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 Twelfth Supplemental Information Disclosure Statement

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. 13/672,437, 13/959,660, U.S. Serial No. U.S. Serial No. 13/339,089, U.S. Serial 12/804,284, No. 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.

Page 178 of 233

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.

Johh

Respectfully submitted,

White



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

John P. White Reg. No. 28,678

/LAYLA D BERRY/

02/07/2017

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Form PTO-1449 (Substitute) U.S. Department of Commerce

Patent and Trademark Office

INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)

A Bandlan Manuel an	15/380,284
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

U.S. PATENT DOCUMENTS				
Examiner Initials*	Cite No.1	Document Number Number-Kind Code ^{2 (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*	Cite No. ¹	Document Number Number-Kind Code ^{2 (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	Cite	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited	T ⁶
Initials*	No.1	Country Code ³ Number ⁴ Kind Code ^{5 (if known)}	MM-DD-YYYY	Document	

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*		Cite 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.		
		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		
		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		
	1	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		
EXAMINEF	XAMINER			

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. 1 Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant 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 Twelfth SIDS Exhibit A

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Page 2 of 5

Form PTO-1449 (Substitute) U.S. Department of Cor Patent and Trademark	Elling Data Degember 15 20	10
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	First Named Inventor Jingyue Ju	
	Art Unit 1637	
INFORMATION DISCLOSURE STATEMENT	Examiner Name Jezia Riley	
(Use several sheets if necessary)	Attorney Docket No. 62239-BZA9/JPW	/AC

		NON PATENT LITERATURE DOCUMENTS	
	No.1	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 ⁶
	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	
		Petitioner's February 28, 2014 Opposition to Patentee Motion to Amend in connection with IPR2013-00266	
		May 4, 2013 Petition for Inter Partes Review of U.S. Patent No. 8,158,346, issued April 17, 2012	
s	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	
	1 (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)	
EXAMINER SIGNATURE		DATE CONSIDERED	

(optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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	TO 1		Application Number	15/380,284	
Form P	ГО- 1	449 (Substitute) U.S. Department of Commerce	Filing Date	December 15, 2	016
		Patent and Trademark Office	First Named Inventor	Jingyue Ju	
			Art Unit	1637	
INFOR	MAT	ION DISCLOSURE STATEMENT	Examiner Name	Jezia Riley	
(Use sev	real	sheets if necessary)	Attorney Docket No.	62239-BZA9/JPI	W/AC
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	1	NON PATENT LITERATURE DO	OCUMENTS	·	
Examiner Initials*		Include name of the author (in CAPITAL LETTERS), title of th (book, magazine, journal, serial, symposium, catalog, etc.) date, pa and/or country where pub	age(s), volume-issue num		T ⁶
	1	March 21, 2014 Patent Owner's Reply	to Petitione	r's	
	23	Opposition to Patent Owner's Motion	to Amend in	connection	
		with IPR2013-00266			
		Exhibit 2030, filed March 21, 2014	in connection	with	
	24	IPR2013-00266: March 11, 2014 Bruce			
		Transcript	DE dironada do		
		Exhibit 2032, filed March 21, 2014	in connection	with	
		IPR2013-00266: Excerpts from 2014-0			-
	25	Deposition Transcript in related IP		anciada	
		Exhibit 2043, filed March 21, 2014			-
		IPR2013-00266: English translation			
	20	5			
		"Protection Of Phenols By The Azidor			
		Application To The Synthesis Of Unst	cable Phenois		
		Tetrahedron, 44:6055-6064 (1988)		• • •	
		Exhibit 2044, filed March 21, 2014			
	27	IPR2013-00266: Excerpts from Octobe:			
		Branchaud Deposition Transcript in :	related Inter	Partes	
		Review IPR2013-00128			ļ
		Exhibit 2045, filed March 21, 2014			
	28	IPR2013-00266: Welch et al., "Synthe			
		Designed for Combinatorial DNA Seque 5:951-960 (1999)			
		Exhibit 2046, filed March 21, 2014 :	in connection	with	
	20	IPR2013-00266: Welch et al., Corrig	enda to "Syntl	neses of	
	2.5	Nucleosides Designed for Combinator:	ial DNA Seque	ncing"	
		Chem. Eur. J., 11:7145 (2005)			
		Exhibit 2047, filed March 21, 2014	in connection	with	
		IPR2013-00266: Wu et al., "Terminat:			
	30	N ⁶ -alkylated, not 3'-0-alkylated, pr			-
		deoxyadenosine triphosphates", Nucle			
		35:6339-6349 (2007)			
		Exhibit 2048, filed March 21, 2014 :	in connection	with	
		IPR2013-00266: Taylor et al., "Rise			
		helices of double-stranded rotaviru:			
		electron microscopy" Virus Research,		-	
EVADADA					
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*EXAMIN	ER: In	itial if citation considered, whether or not citation is in conformance with N			
conformance	e and n	ot considered. Include copy of this form with next communication to appli- inds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 90	cant. ¹ Applicant's unique c	itation designation numb	jer
		standard ST 3) ⁴ For Japanese natent documents at <u>www.uspto.gov</u> of MPEP 90			

letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents at <u>www.uspto.gov</u> of MPEP 901.04. ⁴ Enter Office that issued the document, by the two number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

Page 4 of 5

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

NON PATENT LITERATURE DOCUMENTS Cite Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item Examiner Initials* No.¹ (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published. Exhibit 2049, filed March 21, 2014 in connection with 32 [IPR2013-00266: Watson et al., Molecular Biology of the Gene, Fifth Edition, Chapter 6 (2004) Exhibit 2050, filed March 21, 2014 in connection with 33 IPR2013-00266: Shen et al., "RNA structure at high resolution" FASEB J., 9:1023-1033 (1995) Exhibit 2051, filed March 21, 2014 in connection with IPR2013-00266: Holtzman et al., "Electron microscopy of 34 complexes of isolated acetylcholine receptor, biotinyltoxin, and avidin" Proc. Natl. Acad. Sci. USA, 79:310-314 (1982)Exhibit 2052, filed March 21, 2014 in connection with IPR2013-00266: Pugliese et al., "Three-dimensional 35 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) Exhibit 2053, filed March 21, 2014 in connection with IPR2013-00266: Fersht, "Fidelity of replication of phage 36 ϕ X174 DNA by DNA polymerase III holoenzyme: Spontaneous mutation by misincorporation" Proc. Natl. Acad. Sci. USA, 76:4946-4950 (1979) Exhibit 2054, filed March 21, 2014 in connection with IPR2013-00266: Fersht et al., "DNA polymerase accuracy and 37 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) Exhibit 2055, filed March 21, 2014 in connection with IPR2013-00266: Bebenek et al., "Frameshift errors initiated 38 by nucleotide misincorporation" Proc. Natl. Acad. Sci. USA,

87:4946-4950 (1990) 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)

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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

Page 5 of 5

Form PTO-1449 (Substitute)	(c) clot bepartment of commerce	Application Number	15/380,284
		Filing Date	December 15, 2016
	Fatent and Trademark Office	First Named Inventor	Jingyue Ju
· · · · · · · · · · · · · · · · · · ·	Art Unit	1637	
INFORMATION DISCLOSU	Examiner Name	Jezia Riley	
(Use several sheets if necessary)		Attorney Docket No.	62239-BZA9/JPW/AC
N	ON PATENT LITERATURE DO	CUMENTS	

Examiner		Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item	T ⁶
Initials*	No. ¹	(book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	
		Exhibit 2057, filed March 21, 2014 in connection with	
		IPR2013-00266: Greene and Wuts, Protective Groups in	l
		Organic Synthesis, 3rd ed., Chapter 1 (1999)	Ĺ
		April 18, 2014 Petitioner Motion for Observations on the	Í
		Cross-Examination Testimony of Dr. Romesberg, in connection	l
	L'	with IPR2013-00266	
	12	April 18, 2014 Petitioner Motion to Exclude Evidence in	I
		connection with IPR2013-00266	ļ
	i '	Exhibit 1042, filed April 18, 2014 in connection with	I
		IPR2013-00266: April 10, 2014 transcript of Deposition of	l
	L'	Floyd Romesberg	
	44	April 18, 2014 Patentee Motion to Exclude Evidence in	l
		connection with IPR2013-00266	
		May 2, 2014 Patentee Response to Petitioner Motion for	1
		Observations on Romesberg Testimony, in connection with IPR	i
		2013-00266	
		Exhibit 1045, filed May 22, 2014 in connection with	
		IPR2013-00266: Petitioner Demonstratives for May 28, 2014	
	l'	Oral Hearing	
		Exhibit 2060, filed May 22, 2014 in connection with	
	47	IPR2013-00266: Patentee Demonstratives for May 28, 2014	
	1 '	Oral Hearing	
	[]	The second second description of TDD2012 00266	
	48	Transcript of May 28, 2014 Oral Hearing in IPR2013-00266,	
	1	entered July 8, 2014	
	[]		
	49	October 28, 2014 Final Written Decision in connection with	
	1 '	IPR2013-00266	
EXAMINER	. /	LAYLA D BERRY/	
SIGNATUR	E	DATE CONSIDERED UZ/U//ZUL/	
*EXAMINE conformance	L R: In e and n	itial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in ot considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation numb	er
(optional). ²	See K	inds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the	e two-

letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents at <u>www.uspto.gov</u> or MPEP 901.04. ⁴ Enter Office that issued the document, by the two letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English Language Translation is attached.

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Docket No. 62239-BZA9/JPW/AC

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 20th 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.

- 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);

Page 185 of 233

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

- Exhibit 1009, filed June 4, 2013 in connection with IPR2013-00324: June 4, 2013 Declaration of Dr. Bruce Branchaud;
- Exhibit 1010, filed June 4, 2013 in connection with IPR2013-00324: Excerpts from the '026 Patent File History;
- Exhibit 1011, filed June 4, 2013 in connection with IPR2013-00324: Excerpts from the file history of European Patent Application No: 02781434.2; and
- 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.

Page 186 of 233

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

Page 187 of 233 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

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 Thirteenth 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,

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.

WW hn P. White Rey. No. 28,678

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

/LAYLA D BERRY/

02/07/2017 Page 188 of 233

Form PI	F O-1	(Substitute) C.S. Department of Commerce	Application Number Filing Date	15/380,284 December 15, 20	016		
		Patent and Trademark Office			110		
			First Named Inventor	Jingyue Ju			
NEODI	лат	ION DISCLOSURE STATEMENT	Art Unit	1637			
			Examiner Name	Jezia Riley			
Use sev	eral	sheets if necessary)	Attorney Docket No.	62239-BZA9/JPW	1/ A(
		NON PATENT LITERATURE DO	CUMENTS				
Examiner	Cite	Include name of the author (in CAPITAL LETTERS), title of th	e article (when appropri	ate), title of the item	T ⁶		
Initials*	No.1	(book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.					
	1.	June 4, 2013 Petition for Inter Part Patent No. 7,057,026					
	2	Exhibit 1004, filed June 4, 2013 in IPR2013-00324: J. Meinwald, An Appro Pederin, 49 Pure and Appl. Chem. 12'	oach To the S 75 (1977)	ynthesis of			
		Exhibit 1005, filed June 4, 2013 in IPR2013-00324: Takeshi Matsumoto et Structure of Pederin, 60 Tetrahedron	al., A Revis n Letters 629	ed 7 (1968)			
		Exhibit 1009, filed June 4, 2013 in IPR2013-00324: June 4, 2013 Declara Branchaud	connection w tion of Dr. B	ith ruce			
	5	Exhibit 1010, filed June 4, 2013 in IPR2013-00324: Excerpts from the `02	26 Patent Fil	e History			
		Exhibit 1011, filed June 4, 2013 in IPR2013-00324: Excerpts from the fi Patent Application No: 02781434.2	le history of	European			
	7	November 21, 2013 Decision Denying Partes Review of U.S. Patent No. 7, with IPR2013-00324	Institution o 057,026 in co	f Inter nnection			
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conformance ontional). ²	and n See K	itial if citation considered, whether or not citation is in conformance with M ot considered. Include copy of this form with next communication to appli- inds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 90 Standard ST.3). ⁴ For Japanese patent documents, the indication of the year	cant. ¹ Applicant's unique o 01.04. ³ Enter Office that is	citation designation numb sued the document, by the	er e two		

number of the patent document. ³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant 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

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 20th 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.

- August 19, 2013 Petition 1 of 2 for Inter Partes Review of U.S. Patent No. 7,566,537, issued July 28, 2009;
- 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 2 of 17 of Fourteenth Supplemental Information Disclosure Statement

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;
- 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.;
- Exhibit 2008, filed May 5, 2014 in connection with IPR2013-00517: U.S. Patent Application Publication No. 2011/0124054,

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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 Page 3 of 17 of Fourteenth Supplemental Information Disclosure Statement 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-β-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 (+), α -Conhydrine and (+) β -Conhydrine)" Tet. Lett., 25:1555-1556 (1984);
- 21. Exhibit 2017, filed May 5, 2014 in connection with IPR2013-

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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 Page 4 of 17 of Fourteenth Supplemental Information Disclosure Statement 00517: "Synthesis of a Novel Stable GM₃-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) (13th 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(2,4,6trimethoxyphenyl)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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 5 of 17 of Fourteenth Supplemental Information Disclosure Statement 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 6 of 17 of Fourteenth Supplemental Information Disclosure Statement

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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 7 of 17 of Fourteenth Supplemental Information Disclosure Statement 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'-Omodified 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 8 of 17 of Fourteenth Supplemental Information Disclosure Statement 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 9 of 17 of Fourteenth Supplemental Information Disclosure Statement 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 10 of 17 of Fourteenth Supplemental Information Disclosure Statement

- 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: and Grand-Maitre, Faucher tris(2-(TCEP) for the Reduction of Carboxyethyl)phosphine Sulfonylchlorides, N-Oxides, and Azides, Sulfoxides, 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 sequencingby-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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 11 of 17 of Fourteenth Supplemental Information Disclosure Statement

February 11, 1997;

- 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 Relationships of New Analogues of 15 -Activitv 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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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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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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 13 of 17 of Fourteenth Supplemental Information Disclosure Statement 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 14 of 17 of Fourteenth Supplemental Information Disclosure Statement

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

Serial No.: 15/380,284

Filed : December 15, 2016

- Page 15 of 17 of Fourteenth Supplemental Information Disclosure Statement
- 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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Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 Filed : December 15, 2016 Page 16 of 17 of Fourteenth Supplemental Information Disclosure Statement

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,

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.

P. White

Reg. No. 28,678

Jbhr

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

/LAYLA D BERRY/

02/07/2017

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

U.S. Patent Documents					
Examiner	Cite ID ¹	Document Number Number-Kind Code ^{2 (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	Olejnik et al.	
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	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.	
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	Foreign Patent Documents or Published Foreign Patent Applications						
Examiner Initial	Cite ID ¹	Foreign Patent Document Country Code ³ Number ⁴ Kind Code ^{5 (If known)}	Publication Date MM/DD/YYYY	Country or Patent Office ³	Class	T ⁶	
	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			
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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

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

	NON PATENT LITERATURE DOCUMENTS			
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	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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(37 CFR §1.98(b))		December 15, 2016	1637

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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)
1	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

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Sheet <u>9</u> of <u>10</u>

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

NON PATENT LITERATURE DOCUMENTS 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), Examiner publisher, city and/or country where published. Initial Cite ID¹ Exhibit 2147, filed September 2, 2014 in connection with 91 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)Exhibit 2151, filed September 2, 2014 in connection with 94 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) Exhibit 2152, filed September 2, 2014 in connection with 95 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) Exhibit 2154, filed September 2, 2014 in connection with 96 IPR2013-00517: Transcript, August 12, 2014 Deposition of Michael L. Metzker, Ph.D. Exhibit 2155, filed September 2, 2014 in connection with 97 IPR2013-00517: Transcript, August 26, 2014 Deposition of Bruce P. Branchaud, Ph.D. Motion Patentee Petitioner Opposition to to Exclude 98 Evidence, filed September 15, 2014 in connection with IPR2013-00517 Patentee Opposition to Petitioner Motion to Exclude 99 Evidence, filed September 15, 2014 in connection with IPR2013-00517 Patentee's Reply to Petitioner's Opposition to Patentee 100 Motion to Exclude Evidence, filed September 22, 2014 in connection with IPR2013-00517 Petitioner's Reply to Patentee's Opposition to Motion to 101 Amend, filed September 22, 2014 in connection with IPR2013-00517

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 c	
number (optional). ² See Kinds of Codes of USPTO Patent Documents	at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the
document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanes	e patent documents, the indication of the year of the reign of the
Emperor must precede the serial number of the patent document. ³ Kin	d of document by the appropriate symbols as indicated on the document
under WIPO Standard ST.16 if possible. 6 Applicant is to place a check	a mark here if English Language Translation is attached.
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Substitute Disclosure Form (PTO-1449)

Page 215 of 233

Sheet <u>10</u> of <u>10</u>

Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 62239-BZA9/JPW/AC	Application No. 15/380,284
Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))		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 ¹	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.
	102	Patentee Demonstratives for Oral Hearing, filed October 3, 2014 in connection with IPR2013-00517
	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
	105	February 11, 2015 Final Written Decision in connection with IPR2013-00517
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Examiner Signature	Date Considered			
/LAYLA D BERRY/	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. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.				
	Substitute Disclosure Form (PTO-1449)			

Page 216 of 233
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 20th 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.

- August 19, 2013 Petition 2 of 2 for Inter Partes Review of U.S. Patent No. 7,566,537, issued August 19, 2013;
- 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

Page 217 of 233

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;

- February 13, 2014 Decision of Institution of Inter Partes Review IPR2013-00518;
- 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 11/810,509, filed June 5, 2007, now U.S. No. 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.

Page 218 of 233

Applicant : The Trustees of Columbia University in the City of New York Serial No.: 15/380,284 : December 15, 2016 Filed 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. U.S. Serial No. 13/672,437, U.S. Serial 13/959,660, No. 12/804,284, U.S. 13/339,089, U.S. Serial No. 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.

Page 219 of 233 ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.D.B/

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,

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.

Walle

P. White

Reg. No. 28,678

Jdhņ

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

/LAYLA D BERRY/

02/07/2017

Page 220 of 233

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

		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No.1	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.	T6
		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	
		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 IPR2013-00518: Excerpts from the file history of European Patent Application No: 02781434.2	
		February 13, 2014 Decision of Institution of Inter Partes Review IPR2013-00518	
		May 5, 2014 Patentee Request for Adverse Judgment in IPR2013-00518	
	7	May 6, 2014 Decision of Adverse Judgment in IPR2013-00518	
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EXAMINEF SIGNATUR	Е	/LAYLA D BERRY/ DATE CONSIDERED 02/07/2017 itial if citation considered, whether or not citation is in conformance with MPEP 609: Draw line through citation if not in	

¹⁶CAMMERCE: Initian Considered, whener of not citation is in combinance with MFEF 009. Draw the unough citation in the initian conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04. ³ Enter Office that issued the document, by the two-lefter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant 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

Page 221 of 233

Docket No. 62239-BZA9/JPW/AC

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 20th 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.

- 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/167. 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);

Page 222 of 233

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.

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.

Page 223 of 233

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 Sixteenth Supplemental Information Disclosure Statement

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,

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

Johr

P. White Reg. No. 28,678

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

/LAYLA D BERRY/

02/07/2017

Page 224 of 233

Page 1 of 1

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PTO-14	49 (S		Application Number	15/380,284				
	`.	Patent and Trademark Office	Filing Date	December 15, 2	016			
			First Named Inventor	Jingyue Ju				
INFOR	мат	ION DISCLOSHER STATEMENT	Art Unit	1637				
			Examiner Name	Jezia Riley				
Use sev	erai	sheets if necessary)	Attorney Docket No.	62239-BZA9/JP	W/AC			
		NON PATENT LITERATURE DOCUM	IENTS					
Examiner Cite Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item Initials' No.1 (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, cit and/or country where published.								
	1	Trustees of Columbia University in t Illumina, Inc., Nos. 2014-1547, 201 (Fed. Cir. Jul. 17, 2015)	he City of Ne		-			
	2	Illumina Cambridge Ltd. v. Intellige Nos/167. 2015-1123 and 2015-1243 (Fee						
	3	Intelligent Bio-Systems, Inc. v. Ill No. 2015-1693 (Fed. Cir. May 9, 2016		dge Ltd.,				
	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							
	 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 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 							
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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 Columb of New York	ia University in the City
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 METHO	D FOR DECODING DNA AND RNA
			30 Rockefeller Plaza 20 th Floor

20th 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**.

- 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.

Page 226 of 233

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,

Certificate of Transmission hereby certify that this rrespondence is being Ι correspondence transmitted via the Electronic Filing System (EFS) to the U.S. Patent and Trademark Office on May 8, 2017. John R. White Reg. No. 28,678

Ath Publit

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

Page 1 of 1

PTO-1449 (Substitute) U.S. De				nent of Commerce	Application Number	15/380,284	
				Frademark Office	Filing Date	December 15, 2016	
					First Named Inventor	Jingyue Ju	
INFORM	лат	TON DISCLO	SURE STATEM	TENT	Art Unit	1637	
					Examiner Name	Layla D. Berry	
(Use sev	eral	sheets if neces	sary)		Attorney Docket No.	62239-BZA9/JPW/AC	
			NON PATEN	T LITERATURE DOCU	MENTS		
Examiner Initials*	xaminer Cite Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the ite						
	1		connection	to Article 94(3) with European			
	2	94(3) EPC,	, filed with connection	0, 2016 Communica the European Pat with European		March 20,	
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EXAMINER SIGNATURI	I	/LAYLA	D BERRY/	DATE CONSIDERED	05/19/2017	I	

*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. ¹Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ 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 Seventeenth SIDS **Exhibit A**

Page 228 of 233

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	The Trustees of Columbia of New York	University in the City
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, 20th 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**.

- 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

Page 229 of 233

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,

hP.T.

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

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

P. White

No. 28,678

John

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Page 1 of 1

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INFORMATION DISCLOSURE STATEMENT Art Unit 1637 (Use several sheets if necessary) Examiner Name Layla D. Berry Attorney Docket No. 62239-BZA9/JF												
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*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609: Draw the through citation if not in conformance with MPEP 609: Draw the through citation if not in conformance with MPEP 609: Draw the through citation if not in conformance with MPEP 609: Draw the through citation is not considered. Applicant's unique citation designation number (optional). ² See Kinds of Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English Language Translation is attached.

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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 Exhibit A

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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):

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