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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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[Continued on next page]

(54) Title: AN AUTOMATED SYNTHESIS OR SEQUENCING APPARATUS AND METHOD FOR MAKING AND USING SAME

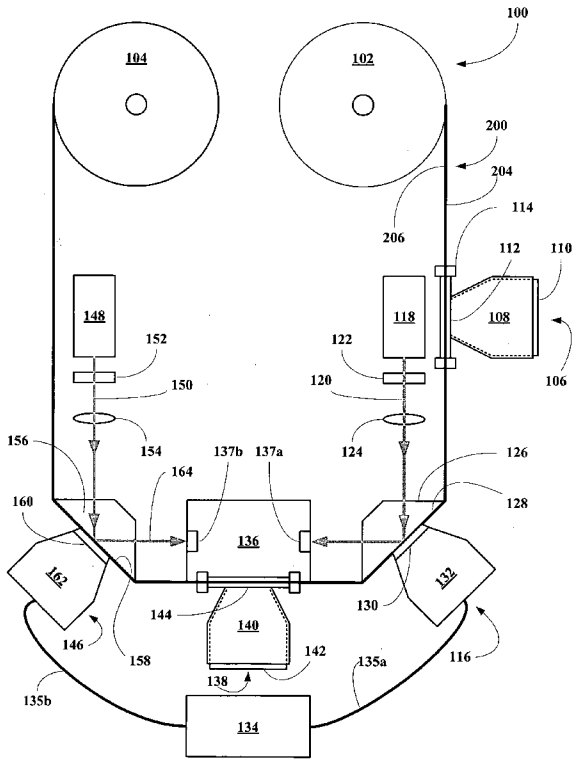


FIG. 1A

(57) Abstract: An apparatus and method based on the apparatus is disclosed for automated single molecule or molecular assemblage detection via light irradiation and detection of transient FRET between a donor or acceptor bound to an immobilized single molecule or molecular assemblage and a corresponding acceptor or donor associated with, covalently bonded to, a reagent, where the donor or acceptor associated with the reagent is transiently in FRET proximity to the acceptor or donor associated with the immobilized molecule or molecular assemblage.

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FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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14 May 2009

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. G01N35/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G01N B01L C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 2006/223078 A1 (CHANGMING LI [SG] ET AL) 5 October 2006 (2006-10-05) paragraphs [0005], [0019] - [0053], [0063]; figure 2	1,3-7, 17,18, 23,25 2
Y	US 2001/031495 A1 (TAJIMA HIDEJI [JP]) 18 October 2001 (2001-10-18) paragraph [0230]; figures 2,9	2
A	US 2004/071599 A1 (RUSCH TERRY L [US] ET AL) 15 April 2004 (2004-04-15) abstract	1-7,17, 18,23,25
A	DE 102 33 212 A1 (SIEMENS AG [DE]) 12 February 2004 (2004-02-12) paragraphs [0047], [0048]; figure 5	1-7,17, 18,23,25

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
13 March 2009	26/03/2009

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	van Lith, Joris

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INTERNATIONAL SEARCH REPORT

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PCT/US2008/008614

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2001/038808 A1 (TAJIMA HIDEJI [JP]) 8 November 2001 (2001-11-08) paragraphs [0003], [0017] - [0020], [0026], [0027], [0031], [0032], [0038], [0039], [0152] - [0156], [3.204] - [0216]; figures 1,7 paragraphs [0221] - [0228] ---	1-15,17, 18,23,25
X	EP 1 304 162 A (AGILENT TECHNOLOGIES INC [US]) 23 April 2003 (2003-04-23) abstract; figures 4,5 paragraphs [0001] - [0014], [0023], [0039] - [0050] ---	1,8-15
A	WO 01/51207 A (GENOSPECTRA INC [US]; CHEN SHIPING [US]; LUO YULING [US]; CHEN ANTHONY) 19 July 2001 (2001-07-19) pages 1-10 page 31, line 18 - page 32, line 13 page 45, lines 21-25 page 35, line 10 - line 19 ---	1,8-15

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/008614

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers only those claims for which fees were paid, specifically claims Nos.:

1-15,17,18,23,25

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-7,17,18,23,25

   directed to channels or cavities in the substrate

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2. claims: 8-15

   directed to sequencing sites

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3. claims: 16,24,26

   directed to mapping pre-active sites

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4. claims: 19,20

   directed to a rigid linear substrate

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5. claims: 21,22

   directed to a substrate comprising a disk

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2008/008614

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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