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(71) Applicants (for all designated States except US): APIBIO SAS [FR/FR]; Zone Astec, 15, rue des Martyrs, F-38054 Grenoble Cedex 9 (FR). IMPIKA SA [FR/FR]; 135 rue du Dirigeable, ZI des Paluds, F-13400 Aubagne (FR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): LAURENT, Alain [FR/FR]; 11, boulevard Edouard Rey, f-38000 Grenoble (FR). SARRA-BOURNET, Philippe [FR/FR]; 1570 RN7 Celony, F-13090 AIX EN PROVENCE (FR). AUDE, Olivier [FR/FR]; 58, avenue des Caillols, Résidence

Marie-Christine, Bat. D16-17, F-13012 MARSEILLE (FR). MORGAVI, Paul [FR/FR]; 564, Lot Fardeloie, Impasse Jean Olivier, F-13600 La Ciotat (FR). MANDRAND, Bernard [FR/FR]; 27, rue de la Doua, F-69100 Villeurbanne (FR). CUZIN, Marc [FR/FR]; Lotissement Pelletière, F-38700 Corenc (FR).

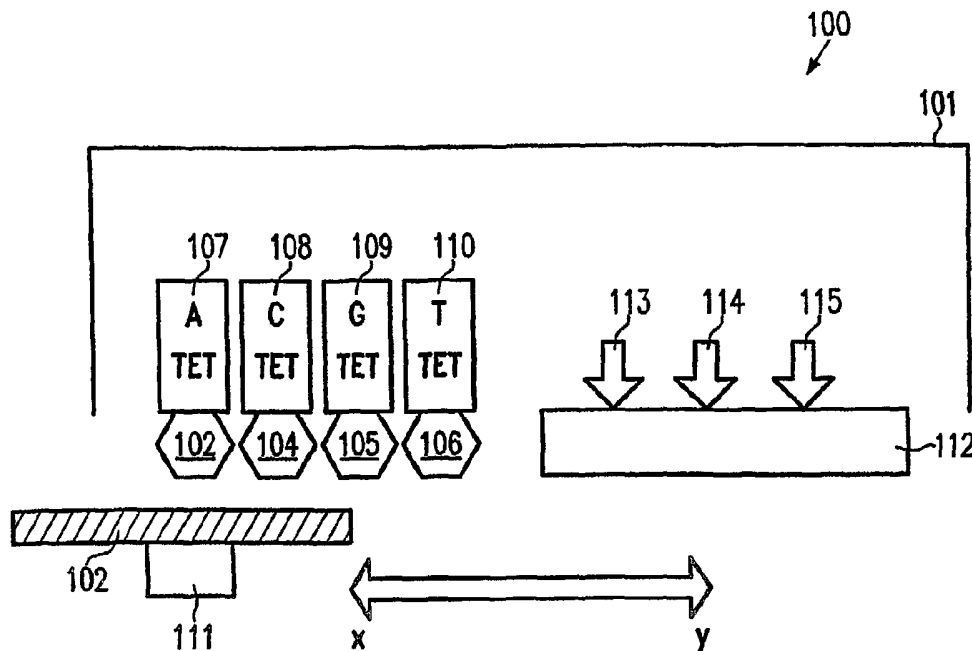
(74) Agent: STOLMAR, HINKELMANN UND PARTNER GBR; Blumenstrasse 17, 80331 München (DE).

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(54) Title: SYSTEM AND PROCESS FOR THE SYNTHESIS OF POLYMERS



(57) Abstract: The present invention relates to an automated polymer synthesis apparatus for synthesizing a polymer chain onto a solid substrate by sequentially adding polymer building blocks as well as to a method for synthesizing polymers on solid substrates by sequentially reacting polymer building blocks with reactive groups. The invention further relates to a biochip comprising a solid substrate with reactive groups where biomolecules are attached to and the remaining reactive groups are transformed into chemically inert species.

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GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/002040

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B01J19/00

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)
IPC 7 B01J

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, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98/41531 A (UNIV WASHINGTON ; BLANCHARD ALAN P (US)) 24 September 1998 (1998-09-24) abstract page 7, line 10 - page 8, line 7 page 22, line 20 - page 25, line 17 page 37, line 7 - line 18 page 50, line 10 - line 25 page 56, line 10 - page 73, line 17; figures	1-9
X	US 5 508 200 A (THAYER PHILLIP ET AL) 16 April 1996 (1996-04-16) abstract column 3, line 23 - column 4, line 67 column 7, line 39 - column 8, line 39 column 9, line 1 - line 33; figures 1,4,12,13	1-9

Further documents are listed in the continuation of box C.

Patent family members are listed in 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

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"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

20 July 2004

Date of mailing of the international search report

19. 10. 04

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Nazario, L

INTERNATIONAL SEARCH REPORT

International application No.
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Box 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 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 all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
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.:

1-9

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

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: 1-9

Independent claims 1 and 9 (dependent claims 2-8) relate to an automated polymer synthesis system comprising an inkjet print head having a plurality of nozzles, a treatment unit, transport means and a micro-mixing vessel adjacent to the print head. Independent claim 9 relates to the use of the system.

2. claims: 10-24

Independent claims 10, 19 and 20 (dependent claims 11-18 and 21-24) relate to a method (claim 10) for synthesizing polymers on polymeric surfaces comprising applying a first building block, reacting it with the substrate's surface, removing the protection of the building block and attaching a second block. The method is characterised by the fact that after attaching the first building block the substrate's surface is rendered chemically inert. Claim 19 relates to a biochip chip obtainable by the method and independent claim 20 relates to a biochip comprising biomolecules attached to a substrate's surface the rest of which has been rendered chemically inert.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/002040

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 95/25116 A (CALIFORNIA INST OF TECHN) 21 September 1995 (1995-09-21) abstract page 3, line 8 - page 5, line 14 page 12, line 31 - page 13, line 34 claims; figures -----	1-9
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A	WO 00/51818 A (MORGAVI PAUL ; GEMPLUS CARD INT (FR)) 8 September 2000 (2000-09-08) figures -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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