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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, CL, 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, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD,

[Continued on next page]

(54) Title: METHODS AND SYSTEMS FOR PRODUCTION OF NANOPARTICLES

(57) Abstract: Methods and systems for preparing nanoparticles. A source of a carrier fluid is connected to an inlet of a flow conduit, such as an intravenous solution administration tube with injection ports, such that the carrier fluid flows through the conduit. A substance (e.g., a drug solution or other substance solution) is introduced into the conduit at a first location causing substance nanoparticles to form within and continue to flow through the conduit. A stabilizer is introduced into the conduit at a second location to cause a stabilizing effect on the nanoparticles. In some embodiments, the stabilizer may limit or deter agglomeration or growth of the nanoparticles, thereby limiting the size of the nanoparticles produced.

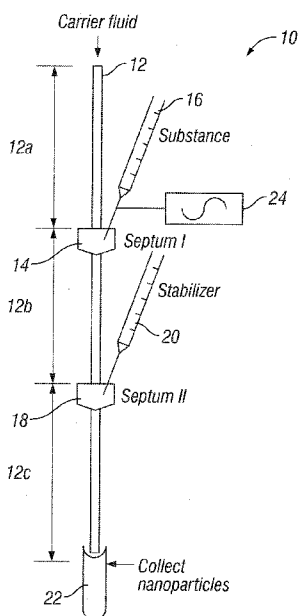


FIG. 5

WO 2010/012005 A3



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Published:

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/051881**A. CLASSIFICATION OF SUBJECT MATTER****B82B 3/00(2006.01)i**

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: B82B 3/00

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 practicable, search terms used)

eKOMPASS(KIPO internal) ; nanoparticles

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 03-057362 A2 (IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY & MEDICINE) 17 July 2003 See Fig. 6, [0031].	1-38
Y	WO 2007-150030 A2 (MASSACHUSETTS INSTITUTE OF TECHNOLOGY et al.) 27 December 2007 See [001]-[121], [201]-[203].	1-38
A	WO 02-056866 A1 (ORION CORPORATION) 25 July 2002 See claims.	1-38
A	US 6224794 B1 (Amsden et al.) 01 May 2001 See abstract.	1-38
A	JAHN, A. et al., Preparation of nanoparticles by continuous-flow microfluidics, J Nanopart Res, 2008, 10, pages 925-934 (15 February 2008) See abstract.	1-38

 Further documents are listed in the continuation of Box C. 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 application or patent 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 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

02 APRIL 2010 (02.04.2010)

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2009/051881**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.: 39-63
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:

The feature of claims 39, 40, 42-59 is not referred to in the description. Therefore, claims 39, 40, 42-59 are not supported by the description. Claim 41 is missing in this application. Claims 60-63 dependent on claim 19 relate to the process, but claim 19 relates to a method. Therefore claims 60-63 do not clearly define the matter for which protection is sought.
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:

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.:

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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/051881

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 03-057362 A2	17.07.2003	AU 2003-235809 A1 EP 1503852 A2 GB 0200744 D0 US 2006-0087048 A1 US 7252814 B2 WO 03-057362 A3	24.07.2003 09.02.2005 27.02.2002 27.04.2006 07.08.2007 17.07.2003
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WO 02-056866 A1	25.07.2002	AT 387185 T DE 60225242 T2 DE 60225242 D1 EP 1351666 A1 EP 1351666 B1 FI 20010115 D0 JP 2004-520157 A US 2004-0091542 A1	15.03.2008 19.03.2009 10.04.2008 15.10.2003 27.02.2008 18.01.2001 08.07.2004 13.05.2004
US 6224794 B1	01.05.2001	None	