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Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

- (88) **Date of publication of the international search report:**
25 March 2010

(54) **Title:** SAMPLE PREPARATION DEVICES AND METHODS FOR PROCESSING ANALYTES

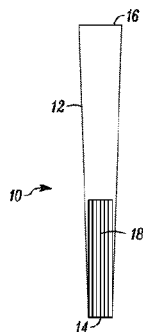


FIG. 1A

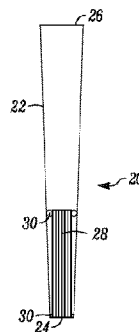


FIG. 1B

(57) **Abstract:** Disclosed herein are sample preparation devices, such as pipette tips useful for associating and releasing biological molecules.

A. CLASSIFICATION OF SUBJECT MATTER***B01L 3/02(2006.01)i, G01N 35/10(2006.01)i, G01N 1/02(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 B01L

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

(Chinese Patents and application for patent)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKIPASS(KIPO internal) & keywords: "pipette tip", "insert", "sitered solid support", "multi-fiber solid support"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---	JP 2003-251122 A (NITTO DENKO CO.) 9 Sep. 2003 See Paragraph [0017]-Paragraph [0035]; Figures 1-3.	1, 3, 5, 12-17, 26
Y ---		7, 27, 28
A		2, 4, 6
Y	JP 2000-515066 A (MILLIPORE CO.) 14 Nov. 2000 See Claim 1; Figure 2A.	7, 27, 28
X ---	JP 2004-237142 A (NITTO DENKO CO.) 26 Aug. 2004 See Paragraph [0012]-Paragraph [0029]; Figure 1.	1, 3, 5, 12-17, 26
Y ---		7, 27, 28
A		2, 4, 6

 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

03 FEBRUARY 2010 (03.02.2010)

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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.: 11, 19-22
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:

These claims are dependent on claims which do not comply with PCT Rule 6.4(a), and thus these claims are not searchable.

3. Claims Nos.: 8-10, 18, 23, 24, 36, 37, 39-44
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 the Extra 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.:
1-24, 26-28, 36, 37, 39-44

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.

Continuation of Box NO. III

I. Claims 1–28, 36, 37, 39–44 are drawn to devices which include an insert comprising (i) a sintered solid support with voids, or (ii) a multi-fiber solid support with void between adjacent fibers.

II. Claims 29–36, 38–40, 45–48 are drawn to devices, which include beads located within the interior of the pipette tip device between the first plug and the second plug.

III. Claims 49–79 are drawn to devices, which comprises a pipette tip and an insert within the interior, wherein the insert comprises an array of fins oriented in a substantially parallel orientation.

IV. Claims 80–109 are drawn to a pipette tip comprising a first terminal void and a second terminal void and a filter.

V. Claims 110–129 are drawn to a pipette tip manufactured from a polymer mixture the comprises an inner surface and an exterior surface, wherein (i) a portion of the inner surface is irregular, (ii) the polymer mixture comprises a polymer and a material that can associate with an analyte, (iii) the material that can associate with the analyte is substantially dispersed regularly throughout the polymer mixture prior to manufacturing the pipette tip, and (iv) the portion of the inner surface that is irregular exposes the material that can associate with the analyte.

VI. Claims 130–142 are drawn to a mold and a method for manufacturing a pipette tip having an exterior surface and an inner surface, which comprises a body that forms the exterior surface and a core pin that forms the inner surface, where the core pin comprises an irregular surface that result in a portion of the inner surface of the pipette tip that is irregular.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/038686

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2003-251122 A	09.09.2003	JP 3759910 B2	29.03.2006
JP 2000-515066 A	14.11.2000	AU 722581 B2	10.08.2000
		AU 1998-61861 B2	18.09.1998
		CA 2279363 A1	03.09.1998
		CA 2279363 C	20.08.2002
		CN 1248926 A	29.03.2000
		CN 1137761 C	11.02.2004
		EP 1015098 A1	05.07.2000
		EP 1015098 B1	14.08.2002
		EP 1015098 A4	09.08.2000
		JP 03-941842 B2	04.07.2007
		JP 2002-263451 A	17.09.2002
		JP 04-320140 B2	05.06.2009
		WO 1998-037949 A1	03.09.1998
JP 2004-237142 A	26.08.2004	None	