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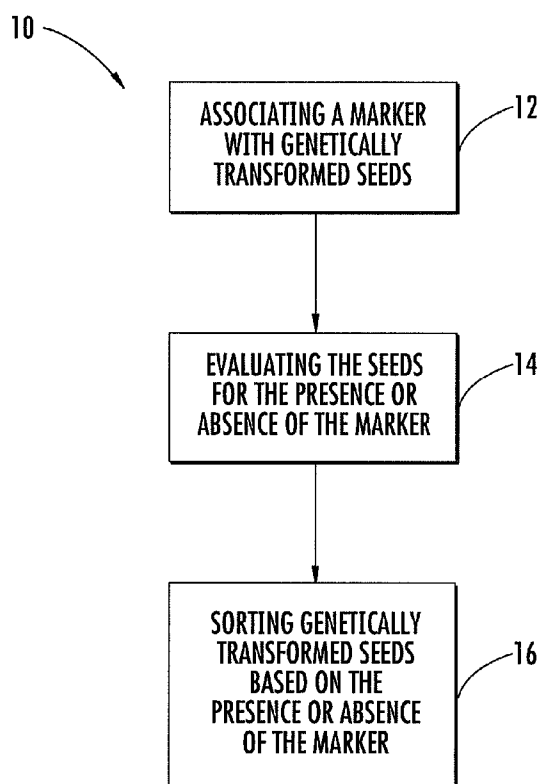
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[Continued on next page]

(54) Title: A METHOD AND COMPUTER PROGRAM PRODUCT FOR DISTINGUISHING AND SORTING SEEDS CONTAINING A GENETIC ELEMENT OF INTEREST



(57) Abstract: A method and computer program product for distinguishing and sort seeds containing a genetic element of interest from a bulk sample. In various embodiment s. The present invention comprises associating a marker with at least some of the seeds containing a genetic element of interest of the bulk sample, exciting the seeds using an electromagnetic energy emitting device, evaluating at least some of the seeds of the bulk sample for the presence or absence of the marker using an evaluating device configured to excite a majority of the surface area of the seeds, and sorting the seeds containing a genetic element of interest based on the presence or absence of the marker. In other embodiments, the method and computer program product may comprise associating a red fluorescent protein marker with at least some of the seeds containing a genetic element of interest of the bulk sample, evaluating at least some of the seeds of the bulk sample for the presence of the red fluorescent protein marker using an evaluating device, and sorting the seeds containing a genetic element of interest based on the presence of the red fluorescent protein marker.

FIG. 1



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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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2008/061238

A. CLASSIFICATION OF SUBJECT MATTER

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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 B07C

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)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WENCK A ET AL: "Reef-coral proteins as visual, non-destructive reporters for plant transformation" PLANT CELL REPORTS, SPRINGER VERLAG, DE, vol. 22, no. 4, 1 November 2003 (2003-11-01), pages 244-251, XP002459243 ISSN: 0721-7714	1-3, 6-14, 20-22, 25-33
Y	abstract	4,5, 15-19, 23,24, 34-38
A	page 245, right-hand column page 246, right-hand column, last paragraph page 249, right-hand column figure 4 ----- -/-	44,45

☒ 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

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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.

Z document member of the same patent family

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2008/061238

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MELAMED-BESSUDO CATHY ET AL: "A new seed-based assay for meiotic recombination in <i>Arabidopsis thaliana</i> " PLANT JOURNAL, vol. 43, no. 3, August 2005 (2005-08), pages 458-466, XP002491814 ISSN: 0960-7412 abstract page 459, right-hand column, last paragraph page 464, left-hand column, paragraphs 2,3 -----	1,2, 6-14,20, 21,25-33
X	A.R STUITJE ET AL.: "Seed-expressed fluorescent proteins as versatile tools for easy (co)transformation and high-throughput functional genomics in <i>Arabidopsis</i> " PLANT BIOTECHNOLOGY JOURNAL, vol. 1, 2003, pages 301-309, XP002491815 abstract figure 3 page 306, left-hand column, last paragraph figure 5 page 308, left-hand column, paragraph 2 -----	1-3, 6-14, 20-22, 25-33
X	KEITO NISHIZAWA ET AL: "A red fluorescent protein, DsRed2, as a visual reporter for transient expression and stable transformation in soybean" PLANT CELL REPORTS, SPRINGER-VERLAG, BE, vol. 25, no. 12, 14 July 2006 (2006-07-14), pages 1355-1361, XP019459369 ISSN: 1432-203X abstract page 1356, left-hand column, lines 7-10 page 1359, left-hand column page 1360, left-hand column -----	1,2, 6-14,20, 21,25-33
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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2008/061238

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 947 144 B2 (KIM JOO-KON [KR] ET AL KIM JOO-KON [KR] ET AL) 20 September 2005 (2005-09-20) cited in the application column 3, line 63 - column 4, line 46 abstract figure 9	4,5, 15-19, 23,24, 34-45
A	GB 954 333 A (MANDREL INDUSTRIES) 2 April 1964 (1964-04-02) page 1, line 64 - line 86 page 3, line 52 - line 86 page 5, line 87 - line 95 figure 1	16,18, 35,37
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A	US 2 152 758 A (COX DAVID C) 4 April 1939 (1939-04-04) figures 2,12 page 2, line 73 - page 3, line 26 page 4, line 11 - line 32 page 3, line 73 - line 44	39-45
A	US 5 973 286 A (WAN YE-NU [TW]) 26 October 1999 (1999-10-26) abstract column 4, line 10 - line 19 figure 2	39-45

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/061238

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 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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-38

Method and computer program for distinguishing transgenic seeds based on the presence of a red fluorescent protein

2. claims: 39-45

Method for distinguishing transgenic seeds with optimised illumination

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2008/061238

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