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(54) Title: DETECTION OF MICROSATELLITE INSTABILITY

FIG. 1A

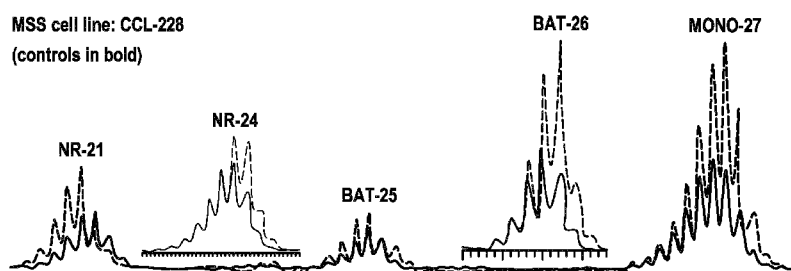
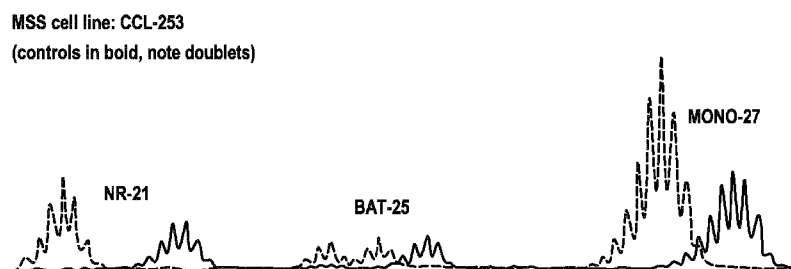


FIG. 1B



(57) Abstract: Methods and systems for detecting MSI are provided. Also provided are methods for enriching human genomic DNA for microsatellite loci. Additional, an oligonucleotide array for detecting MSI is provided.





SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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Declarations under Rule 4.17:

- *of inventorship (Rule 4.17(iv))*

Published:

- *with international search report (Art. 21(3))*
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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2019/067371

A. CLASSIFICATION OF SUBJECT MATTER
INV. G16B20/20
ADD.

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)
G16B

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)

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	KAUTTO E. A. ET AL: "Performance evaluation for rapid detection of pan-cancer microsatellite instability with MANTIS", ONCOTARGET, vol. 8, no. 5, 12 December 2016 (2016-12-12), pages 7452-7463, XP055651336, United States ISSN: 1949-2553, DOI: 10.18632/oncotarget.13918 the whole document ----- -/--	1-13



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 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

7 April 2020

Date of mailing of the international search report

29/06/2020

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2019/067371

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ZHU L. ET AL: "A Novel and Reliable Method to Detect Microsatellite Instability in Colorectal Cancer by Next-Generation Sequencing", THE JOURNAL OF MOLECULAR DIAGNOSTICS, vol. 20, no. 2, 1 March 2018 (2018-03-01), pages 225-231, XP055651393, US ISSN: 1525-1578, DOI: 10.1016/j.jmoldx.2017.11.007 the whole document -----	1-13
X	SALIPANTE S. J. ET AL: "Microsatellite Instability Detection by Next Generation Sequencing", CLINICAL CHEMISTRY, vol. 60, no. 9, 1 September 2014 (2014-09-01), pages 1192-1199, XP055571285, ISSN: 0009-9147, DOI: 10.1373/clinchem.2014.223677 the whole document -----	1-13
A	WO 2017/050934 A1 (BIOCARTIS NV [BE]) 30 March 2017 (2017-03-30) the whole document -----	1-13
A	MURPHY K. M. ET AL: "Comparison of the Microsatellite Instability Analysis System and the Bethesda Panel for the Determination of Microsatellite Instability in Colorectal Cancers", THE JOURNAL OF MOLECULAR DIAGNOSTICS, vol. 8, no. 3, 1 July 2006 (2006-07-01), pages 305-311, XP055395422, US ISSN: 1525-1578, DOI: 10.2353/jmoldx.2006.050092 the whole document -----	1-13
A	WO 2018/037231 A1 (THE UNIV OF NEWCASTLE UPON TYNE [GB]) 1 March 2018 (2018-03-01) the whole document -----	1-13
X,P	BAUDRIN L. G. ET AL: "Molecular and Computational Methods for the Detection of Microsatellite Instability in Cancer", FRONTIERS IN ONCOLOGY, vol. 8, no. 621, 12 December 2018 (2018-12-12), XP055678952, DOI: 10.3389/fonc.2018.00621 the whole document -----	1-13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2019/067371

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 all searchable 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.:

1-13

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: 1-13

A method and system for detecting microsatellite instability.

2. claim: 14

An array of oligonucleotides.

3. claim: 15

A method of enriching for microsatellite loci in a human genomic DNA sample.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2019/067371

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		WO 2018037231 A1	01-03-2018
