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Published:

— *with international search report (Art. 21(3))*

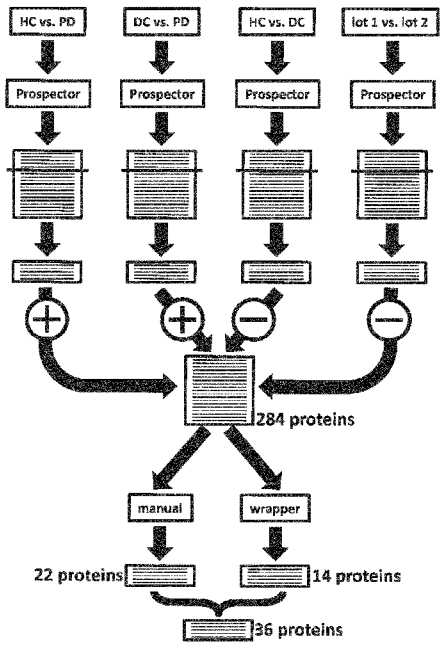
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

— *with sequence listing part of description (Rule 5.2(a))*

[Continued on next page]

(54) **Title**: MARKER SEQUENCES FOR PARKINSON'S DISEASE AND USE THEREOF

Fig. 1



(57) **Abstract**: The present invention relates to new marker sequences for Parkinson 's disease and the diagnostic use thereof together with a method for Screening of potential active substances for Parkinson' s disease by means of these marker sequences. Furthermore, the invention relates to a diagnostic device containing such marker sequences for Parkinson's disease, in particular a protein biochip and the use thereof.

WO 2014/001576 A3

WO 2014/001576 A3

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30 May 2014

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2013/063859

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.c of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

   a. (means)

   - [ ] on paper
   - [X] in electronic form

   b. (time)

   - [X] in the international application as filed
   - [ ] together with the international application in electronic form
   - [ ] subsequently to this Authority for the purpose of search

2. [ ] In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2013/063859

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(completely); 2-15(partially)

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

International application No
PCT/EP2013/063859

A. CLASSIFICATION OF SUBJECT MATTER
INV. G01N33/68
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)
G01N

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, BIOSIS, EMBASE, 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	MIN SHI ET AL: "Cerebrospinal fluid biomarkers for Parkinson disease diagnosis and progression", ANNALS OF NEUROLOGY, vol. 69, no. 3, 11 March 2011 (2011-03-11) , pages 570-580, XP055083164, ISSN: 0364-5134, DOI: 10.1002/ana.22311 page 571, left-hand column, paragraph 4 - page 574, right-hand column, paragraph 1	1

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[X] Further documents are listed in the continuation of Box C.

[X] 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	Date of mailing of the international search report
11 October 2013	09/04/2014

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Fleitmann, J

2

Form PCT/ISA/210 (second sheet) (April 2005)

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE MEDLINE [Online] US NATIONAL LIBRARY OF MEDICINE (NLM), BETHESDA, MD, US; 2010, SCHWEITZER BARRY ET AL: "Immune response biomarker profiling application on ProtoArray protein microarrays.", XP002714548, Database accession no. NLM20407951 abstract & SCHWEITZER BARRY ET AL: "Immune response biomarker profiling application on ProtoArray protein microarrays.", METHODS IN MOLECULAR BIOLOGY (CLIFTON, N.J.) 2010, vol. 641, 2010, pages 243-252, ISSN: 1940-6029	2,7-9

X	WO 2004/085646 A1 (NOVARTIS AG [CH]; NOVARTIS PHARMA GMBH [AT]; IOURGENKO VADIM [US]; LAB) 7 October 2004 (2004-10-07) claims 47-49,56; sequence 16	3-6, 10-15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2013/063859

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2004085646 A1	07-10-2004	AU 2004223739 A1	07-10-2004
		BR PI0408778 A	28-03-2006
		CA 2520001 A1	07-10-2004
		EP 1611239 A1	04-01-2006
		JP 2007523608 A	23-08-2007
		MX PA05010312 A	17-11-2005
		US 2007036810 A1	15-02-2007
		WO 2004085646 A1	07-10-2004

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(completely); 2-15(partially)

Method for identifying marker sequences for Parkinson's disease (PD) by differential screening of samples from healthy persons (HD), samples from patients with other neurodegenerative diseases (DC) and samples from patients with Parkinson's disease and processing the data obtained from the differential screening by a three-step feature selection approach and marker defined by SEQ ID NO. 1 as a PD marker

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2-37. claims: 2-15(partially)

Use of one of the markers identified by SEQ ID NO. 2-37 for the diagnosis of Parkinson's Disease

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