

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
4 April 2002 (04.04.2002)

PCT

(10) International Publication Number
WO 02/026815 A3

(51) International Patent Classification⁷: **C12N 15/12**,
15/62, C07K 14/47, 16/18, C12Q 1/68, G01N 33/574

(21) International Application Number: PCT/EP01/11199

(22) International Filing Date:
27 September 2001 (27.09.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
00870219.3 27 September 2000 (27.09.2000) EP

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(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI,
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU,
ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,
CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,
TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
19 June 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



WO 02/026815 A3

(54) Title: IDENTIFICATION OF NEUROBLASTOMA TUMOR SUPPRESSOR GENES

(57) Abstract: The present invention relates to a new tumor suppressor gene family. More specifically the present invention relates to a tumor suppressor involved in suppression of neuroblastoma. Said tumor suppressor is involved in the generation of micronuclei and in the removal of acentric chromosomal fragments that might contain amplified DNA.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 01/11199

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 C12N15/12 C12N15/62 C07K14/47 C07K16/18 C12Q1/68
 G01N33/574

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 7 C12N C07K C12Q 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 practical, search terms used)

EPO-Internal, SEQUENCE SEARCH, BIOSIS, EMBASE, CAB Data, WPI Data, EMBL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	NAGASE T ET AL: "PREDICTION OF THE CODING SEQUENCES OF UNIDENTIFIED HUMAN GENES. XV. THE COMPLETE SEQUENCES OF 100 NEW CDNA CLONES FROM BRAIN WHICH CODE FOR LARGE PROTEINS IN VITRO" DNA RESEARCH, UNIVERSAL ACADEMY PRESS, JP, vol. 6, 1999, pages 337-345, XP000865804 ISSN: 1340-2838 clone KIAA1245	1,2,5,9, 10
X	--- DATABASE EMBL12 March 2000 (2000-03-12) BLOECKER H., ET AL: "Homo sapiens mRNA; EST DKFZp434M0628_r1" Database accession no. AL044107 XP002229959 nts:1-619 --- -/--	1,5

Further documents are listed in the continuation of box C.

Patent family members are listed in 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 document 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

28 February 2003

Date of mailing of the international search report

09.05.2003

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 01/11199

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 98 54963 A (FERRIE ANN M; HUMAN GENOME SCIENCES INC ; GREENE JOHN M (US); YOUNG) 10 December 1998 (1998-12-10) SEQ ID NO.28 page 24, line 19 - line 25</p> <p style="text-align: center;">---</p>	14, 20-22,25
A	<p>ROY VAN N ET AL: "ANALYSIS OF 1;17 TRANSLOCATION BREAKPOINTS IN NEUROBLASTOMA: IMPLICATIONS FOR MAPPING OF NEUROBLASTOMA GENES" EUROPEAN JOURNAL OF CANCER, PERGAMON PRESS, OXFORD, GB, vol. 33, no. 12, 1997, pages 1974-1978, XP000990818 ISSN: 0959-8049 cited in the application</p> <p style="text-align: center;">---</p>	
A	<p>DATABASE EMBL [Online] 22 May 2000 (2000-05-22) PAVITT R.: "Human DNA sequence. Chromosome 1" Database accession no. AL356581 XP000216422 nts 65460-68595</p> <p style="text-align: center;">-----</p>	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 01/11199

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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:
see FURTHER INFORMATION sheet PCT/ISA/210
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 II Observations where unity of invention is lacking (Continuation of item 2 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 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.:

see FURTHER INFORMATION sheet PCT/ISA/210

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Although claims 14, 22-24 and (17,18)-partly, insofar it concerns an in vivo method, are directed to a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Although claims 15, and (17, 18)-partly are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Although claim 19, insofar it concerns an in vivo method, is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

Invention 1: Claims (1,2,4,6-11,13)-complete; (5, 14-25)-partially

The isolated tumor suppressor gene product of SEQ ID NO:202, encoding DNA of SEQ ID NO:201, fusion proteins of SEQ ID NOs:162-165, fragments of SEQ ID NOs. 2 and 161; encoding DNAs of SEQ ID NOs. 1,3,4, 160 and 203; antibodies, methods to produce said antibodies and uses of said antibodies, therapeutic and diagnosis applications thereof.

Invention 2: Claims (3,5,12,14-25)-partially

Variant of a tumor suppressor gen product of SEQ ID NO:167, encoded DNA of SEQ ID NO:166, antibodies, methods to produce said antibodies and uses of said antibodies, therapeutic and diagnosis applications thereof.

Invention 3-17: Claims (3,5,12,14-25)-partially

Invention 3: Idem to invention 2 but restricted to SEQ ID NOs:168 and 169;...Invention 17: Idem to invention 3 but restricted to SEQ ID NOs:199 and 200.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 01/11199

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		EP 1039801 A1	04-10-2000
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		EP 0972030 A2	19-01-2000
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