

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
25 May 2001 (25.05.2001)

PCT

(10) International Publication Number
WO 01/36645 A3

(51) International Patent Classification⁷: **C12N 15/54**,
15/56, 9/50, 9/12, C07K 16/40, C12Q 1/68, G01N 33/53,
33/68, A61K 38/17

(21) International Application Number: PCT/US00/31744

(22) International Filing Date:
17 November 2000 (17.11.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/165,986	17 November 1999 (17.11.1999)	US
60/181,347	9 February 2000 (09.02.2000)	US
60/194,195	3 April 2000 (03.04.2000)	US
60/194,839	5 April 2000 (05.04.2000)	US
60/195,637	7 April 2000 (07.04.2000)	US
60/197,080	13 April 2000 (13.04.2000)	US
60/232,677	15 September 2000 (15.09.2000)	US
09/715,427	16 November 2000 (16.11.2000)	US

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, 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, 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, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
6 June 2002

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.

(54) Title: SERINE/THREONINE KINASE AND SERINE PROTEASE POLYPEPTIDES AND NUCLEIC ACIDS ENCODING SAME

(57) Abstract: The present invention provides novel isolated SERX polynucleotides and polypeptides encoded by the SERX polynucleotides. Also provided are the antibodies that immunospecifically bind to a SERX polypeptide or any derivative, variant, mutant or fragment of the SERX polypeptide, polynucleotide or antibody. The invention additionally provides methods in which the SERX polypeptide, polynucleotide and antibody are utilized in the detection and treatment of a broad range of pathological states, as well as to other uses.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 00/31744

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/54 C12N15/56 C12N9/50 C12N9/12 C07K16/40
C12Q1/68 G01N33/53 G01N33/68 A61K38/17

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

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, BIOSIS, EMBL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE EMBL [Online] 12 July 1999 (1999-07-12) ROBERT STRAUSBERG: " wj59g02.x1 NCI CGAP Lu19 Homo sapiens cDNA clone IMAGE:2407154 3' similar to TR:054863 054863 TESTIS SPECIFIC SERINE/ THREONINE KINASE 2" retrieved from EBI Database accession no. AI819667	5-13
Y	XP002174518 abstract	1-4, 14-22, 29-41
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☒ 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

24 August 2001

Date of mailing of the international search report

18. 01. 02

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/31744

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 EMBL [Online] 8 October 1999 (1999-10-08) "Homo sapiens chromosome 19 clone CTC-260F20, complete sequence." retrieved from EBI Database accession no. AC011448 XP002174519 abstract ---	5-13
Y	DATABASE SWALL [Online] 1 June 1998 (1998-06-01) KUENG P. ET AL.: "TESTIS SPECIFIC SERINE/ THREONINE KINASE 2 (PROTEIN KINASE)." retrieved from EBI Database accession no. 054863 XP002174520 abstract ---	1-4, 14-22, 29-41
Y	WO 98 36054 A (HOOPER JOHN DAVID ;AMRAD OPERATIONS PTY LTD (AU); ANTALIS TONI MAR) 20 August 1998 (1998-08-20) page 25, line 20 -page 30, line 11; claims 1-65 ---	14-22, 29-41
A	BIELKE W ET AL: "Characterization of a novel murine testis-specific serine/threonine kinase." GENE (AMSTERDAM), vol. 139, no. 2, 1994, pages 235-239, XP002174517 ISSN: 0378-1119 abstract; figure 3 ---	1-8
A	& DATABASE SWALL [Online] 1 November 1996 (1996-11-01) BIELKE W. ET AL.: "TESTIS-SPECIFIC SERINE/THREONINE KINASE." retrieved from EBI Database accession no. Q61241 abstract ---	1-8
P,X	WO 00 58473 A (CURAGEN CORP ;LEACH MARTIN (US); SHIMKETS RICHARD A (US)) 5 October 2000 (2000-10-05) claims 1-32; figures SEQ.ID.3861,3862, -& DATABASE GENESEQ [Online] derwent; 27 March 2001 (2001-03-27) SHIMKETS RA, LEACH M: " Human ORFX ORF1931 polypeptide sequence SEQ ID NO:3862." retrieved from EBI Database accession no. AAB42167 XP002174521 abstract -----	1-8, 14-22, 29-41
T		1-8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 00/31744

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:

Although claim 22, as far as it concerns an in vivo method, and claims 23-28, 42, 43 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.
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.:

1-43 partly

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

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

1. Claims: 1-43 partly

serine/threonine kinase polypeptides with amino acid sequence with seq.id.2 and corresponding nucleotide sequence with seq.id.1 , corresponding vector , transformed cell , antibody , method for determining the presence of a polypeptide or nucleic acid , method for identifying a binding agent ,therapeutic agent or modulator , pharmaceutical , manufacture of a medicament , and a method for determining the presence or predisposition to a disease .

2. Claims: 1-43 partly

serine/threonine kinase polypeptides with amino acid sequence with seq.id.6 and corresponding nucleotide sequence with seq.id.5,7 , corresponding vector , transformed cell , antibody , method for determining the presence of a polypeptide or nucleic acid , method for identifying a binding agent ,therapeutic agent or modulator , pharmaceutical , manufacture of a medicament , and a method for determining the presence or predisposition to a disease .

3. Claims: 1-43 partly

serine/threonine kinase polypeptides with amino acid sequence with seq.id.9 and corresponding nucleotide sequence with seq.id.8 , corresponding vector , transformed cell , antibody , method for determining the presence of a polypeptide or nucleic acid , method for identifying a binding agent ,therapeutic agent or modulator , pharmaceutical , manufacture of a medicament , and a method for determining the presence or predisposition to a disease .

4. Claims: 1-43 partly

serine protease polypeptides with amino acid sequence with seq.id.11 and corresponding nucleotide sequence with seq.id.10 , corresponding vector , transformed cell , antibody , method for determining the presence of a polypeptide or nucleic acid , method for identifying a binding agent ,therapeutic agent or modulator , pharmaceutical , manufacture of a medicament , and a method for determining the presence or predisposition to a disease .

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

5. Claims: 1-43 partly

serine protease polypeptides with amino acid sequence with seq.id.15 and corresponding nucleotide sequence with seq.id.14 , corresponding vector , transformed cell , antibody , method for determining the presence of a polypeptide or nucleic acid ,method for identifying a binding agent ,therapeutic agent or modulator , pharmaceutical , manufacture of a medicament , and a method for determining the presence or prediposition to a disease .

6. Claims: 1-43 partly

serine protease polypeptides with nucleotide sequence with seq.id.16 , corresponding vector , transformed cell ,antibody , method for determining the presence of a polypeptide or nucleic acid , method for identifying a binding agent ,therapeutic agent or modulator , pharmaceutical , manufacture of a medicament , and a method for determining the presence or prediposition to a disease .

7. Claims: 1-43 partly

serine protease polypeptides with nucleotide sequence with seq.id.17 , corresponding vector , transformed cell , antibody , method for determining the presence of a polypeptide or nucleic acid , method for identifying a binding agent ,therapeutic agent or modulator , pharmaceutical , manufacture of a medicament , and a method for determining the presence or prediposition to a disease .

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/31744

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9836054	A	20-08-1998	AU 5973498 A	08-09-1998
			WO 9836054 A1	20-08-1998

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