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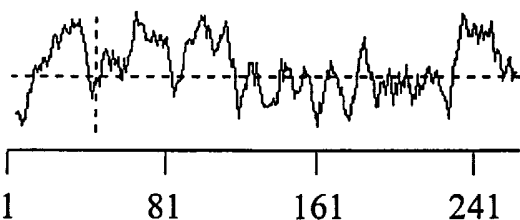
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: 23228, A NOVEL HUMAN TETRASPANIN FAMILY MEMBER AND USES THEREOF



utilizing compositions of the invention are also provided.

(57) Abstract: The invention provides isolated nucleic acids molecules, designated 23228 nucleic acid molecules, which encode novel tetraspanin members. The invention also provides antisense nucleic acid molecules, recombinant expression vectors containing 23228 nucleic acid molecules, host cells into which the expression vectors have been introduced, and nonhuman transgenic animals in which a 23228 gene has been introduced or disrupted. The invention still further provides isolated 23228 proteins, fusion proteins, antigenic peptides and anti-23228 antibodies. Diagnostic methods

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INTERNATIONAL SEARCH REPORT

International Application No
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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/12 C07K14/705 C07K16/28 G01N33/53 G01N33/68
C12Q1/68

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 G01N C12Q

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

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! 21 February 2000 (2000-02-21) WATERSTON, R.H.: "Homo sapiens chromosome 5 clone RP11-375B1, WORKING DRAFT SEQUENCE, 29 unordered pieces." Database accession no. AC024042 XP002211767 see nt 2952-4127 and 22238-23054 ---	1-4, 11
A	TODD S C ET AL: "SEQUENCES AND EXPRESSION OF SIX NEW MEMBERS OF THE TETRASPANIN/TM4SF FAMILY" BIOCHIMICA ET BIOPHYSICA ACTA. BIOMEMBRANES, AMSTERDAM, NL, vol. 1399, no. 1, 1998, pages 101-104, XP000914781 ISSN: 0005-2736 the whole document --- -/--	

☒ 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

30 August 2002

Date of mailing of the international search report

16/09/2002

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 01/41811

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	DATABASE EMBL 'Online! 3 July 2001 (2001-07-03) ZHANG, W. ET AL.: "Homo sapiens tetraspan protein SB134 mRNA, complete cds." Database accession no. AY037146 XP002211768 the whole document ----	1-13
P,X	WO 00 56891 A (INCYTE PHARMA INC ;AZIMZAI YALDA (US); REDDY ROOPA (US); YUE HENRY) 28 September 2000 (2000-09-28) the whole document ----	1-18
P,X	WO 00 70076 A (HUMAN GENOME SCIENCES INC ;NI JIAN (US); ROSEN CRAIG A (US); FAN P) 23 November 2000 (2000-11-23) see HNTMH27 -----	1-18

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 01/41811

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 18 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.
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:

see FURTHER INFORMATION sheet PCT/ISA/210
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:

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.:

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.2

Present claims 15-18 relate to products defined by reference to a desirable characteristic or property, namely being able to modulate the activity and/or expression of the protein of claim 1.

The claims cover all products having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for only a very limited number of such products. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the compound by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to antibodies directed against the protein of claim 1, which modulate the activity of said protein.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT
information on patent family members

International Application No
PCT/US 01/41811

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 0056891	A	28-09-2000	AU	3916400 A	09-10-2000
			EP	1210419 A2	05-06-2002
			WO	0056891 A2	28-09-2000
WO 0070076	A	23-11-2000	AU	5022200 A	05-12-2000
			EP	1183386 A1	06-03-2002
			WO	0070076 A1	23-11-2000
			AU	5174600 A	02-01-2001
			EP	1187908 A1	20-03-2002
			WO	0077173 A1	21-12-2000