



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/JP99/00875 (22) International Filing Date: 25 February 1999 (25.02.99) (30) Priority Data: 10/46607 27 February 1998 (27.02.98) JP (71) Applicants (for all designated States except US): SAGAMI CHEMICAL RESEARCH CENTER [JP/JP]; 4-1, Nishi-Ohnuma 4-chome, Sagamihara-shi, Kanagawa 229-0012 (JP). PROTEGENE INC. [JP/JP]; 2-20-3, Naka-cho, Meguro-ku, Tokyo 153-0065 (JP). (72) Inventors; and (75) Inventors/Applicants (for US only): KATO, Seishi [JP/JP]; 3-46-50, Wakamatsu, Sagamihara-shi, Kanagawa 229-0014 (JP). SEKINE, Shingo [JP/JP]; Remonzu 101, 2-8-15, Atago, Ageo-shi, Saitama 362-0034 (JP). KIMURA, Tomoko [JP/JP]; 302, 4-1-28, Nishiikuta, Tama-ku, Kawasaki-shi, Kanagawa 214-0037 (JP). NAKAMURA, Nobuko [JP/JP]; 2-20-6, Kozonominami, Ayase-shi, Kanagawa 252-1122 (JP). (74) Agents: AOYAMA, Tamotsu et al.; Aoyama & Partners, IMP Building, 3-7, Shiromi 1-chome, Chuo-ku, Osaka-shi, Osaka 540-0001 (JP).	(81) Designated States: AU, CA, JP, MX, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims</i> <i>and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 29 December 1999 (29.12.99)	
(54) Title: HUMAN PROTEINS HAVING TRANSMEMBRANE DOMAINS AND DNAs ENCODING THESE PROTEINS (57) Abstract Human proteins having transmembrane domains, cDNAs coding for these proteins, and expression vectors of said cDNAs as well as eucaryotic cells expressing said cDNAs. Said proteins and eucaryotic cells having said proteins on the membrane surface can be provided by expression of cDNAs coding for human proteins having transmembrane domains and of recombinants of these human cDNAs.		

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INTERNATIONAL SEARCH REPORT

Intern. Appl. Application No
PCT/JP 99/00875

A. CLASSIFICATION OF SUBJECT MATTER IPC 6 C12N15/12 C12N5/10 C07K14/705		
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 6 C12N C07K		
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)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO 98 54963 A (FERRIE ANN M; HUMAN GENOME SCIENCES INC ; GREENE JOHN M (US); YOUNG) 10 December 1998 see abstract sequence of gene 23 / clone HSQE084 (Human ortholog of mouse FKBP23): 100% identical to seq. ID 1 (aa 1-120). see abstract --- -/--	1-6
☒ 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. *Z* document member of the same patent family		
Date of the actual completion of the international search	Date of mailing of the international search report	
15 July 1999	03.11.1999	
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer Galli, I

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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 SEQUENCES EMBL, Heidelberg, FRG Accession No. AF040252, 3 February 1998 NAKAMURA T. ET AL.: "Mouse FK-506 binding protein (FKBP23)" XP002109279 amino acids 1-138 are 85.8% identical to seq. ID 1. see abstract & NAKAMURA T. ET AL.: "Molecular cloning, characterization and chromosomal localization of FKBP23, a novel FK506-binding protein with Ca²⁺-binding ability." GENOMICS, vol. 54, no. 1, November 1998, pages 89-98, ---	1-6
X	DATABASE GENBANK Accession No. AA457921, 6 June 1997 MARRA M. ET AL.: "EST; mouse cDNA clone IMAGE:849512 similar to FK506-binding protein precursor" XP002109280 the sequence encodes amino acids 24-100 of seq. ID 1 (93.9% identity) see abstract ---	1-6
A	WO 95 34641 A (SCRIPPS RESEARCH INST) 21 December 1995 see abstract see abstract; examples 1-4 see abstract; claims 1-47; examples 1-4 ---	1-6
A	WO 93 23548 A (VERTEX PHARMA) 25 November 1993 see abstract; claims 1-47; examples 1-4 ---	1-6
A	WO 95 00633 A (CHILDRENS MEDICAL CENTER ;UNIV LELAND STANFORD JUNIOR (US)) 5 January 1995 see abstract; claims 1-47; examples 1-4 -----	1-6

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International application No.
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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:

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, subject 1.

Remark on Protest

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

INTERNATIONAL SEARCH REPORT

International Application No. PCT/JP 99/00875

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: (1-6) - partial

Proteins containing the amino acid sequece of seq. ID 1.

Corresponding cDNAs (seq. IDs 8,15), vectors, transformed eucaryotic cells.

2. Claims: (1-6) - partial

Idem as subject matter 1 but limited to seq. IDs 2,9,17.

3. Claims: (1-6) - partial

Idem as subject matter 1 but limited to seq. IDs 3,10,19.

4. Claims: (1-6) - partial

Idem as subject matter 1 but limited to seq. IDs 4,11,21.

5. Claims: (1-6) - partial

Idem as subject matter 1 but limited to seq. IDs 5,12,23.

6. Claims: (1-6) - partial

Idem as subject matter 1 but limited to seq. IDs 6,13,25.

7. Claims: (1-6) - partial

Idem as subject matter 1 but limited to seq. IDs 7,14,27.

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9854963 A	10-12-1998	AU 7812098 A	21-12-1998
		AU 7811998 A	21-12-1998
		AU 6552198 A	29-09-1998
		WO 9840483 A	17-09-1998
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WO 9534641 A	21-12-1995	AU 2773595 A	05-01-1996
-----	-----	-----	-----
WO 9323548 A	25-11-1993	AU 4388893 A	13-12-1993
-----	-----	-----	-----
WO 9500633 A	05-01-1995	US 5486599 A	23-01-1996
		AU 7112994 A	17-01-1995
		EP 0705332 A	10-04-1996
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