



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁶ : C12N 15/12, C07K 14/47, A61K 38/17, C07K 16/18, C12Q 1/68</p>	A3	<p>(11) International Publication Number: WO 99/58676</p> <p>(43) International Publication Date: 18 November 1999 (18.11.99)</p>
<p>(21) International Application Number: PCT/US99/09831</p> <p>(22) International Filing Date: 5 May 1999 (05.05.99)</p> <p>(30) Priority Data: 60/085,497 14 May 1998 (14.05.98) US</p> <p>(71) Applicant (for all designated States except US): IMMUNEX CORPORATION [US/US]; 51 University Street, Seattle, WA 98101 (US).</p> <p>(72) Inventor; and (75) Inventor/Applicant (for US only): SPRIGGS, Melanie, K. [US/US]; 2256 12th Avenue West, Seattle, WA 98119 (US).</p> <p>(74) Agent: HENRY, Janis, C.; Immunex Corporation, Law Dept., 51 University Street, Seattle, WA 98101 (US).</p>		<p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, 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, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, 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), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 20 January 2000 (20.01.00)</p>
<p>(54) Title: SEMAPHORIN POLYPEPTIDES</p>		
<p>(57) Abstract</p>		
<p>The invention is directed to semaphorin polypeptide as a purified and isolated protein, the DNA encoding the semaphorin polypeptide, host cells transfected with cDNAs encoding the polypeptide and methods for preparing the semaphorin polypeptide.</p>		

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 99/09831

A. CLASSIFICATION OF SUBJECT MATTER				
IPC 6 C12N15/12 C07K14/47 A61K38/17 C07K16/18 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 6 C12N C07K A61K 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)				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
P, X	EP 0 892 047 A (HOECHST MARION ROUSSEL DE GMBH) 20 January 1999 (1999-01-20) 99.95% identity in a 2001 BP overlap between SEQ ID NO 1 of EP892047 and SEQ ID 1 of the application examples 8,9 <div style="text-align: center;">— — — — — — / —</div>	1-14, 16, 18-23		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.				
* Special categories of cited documents : <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> "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 </td> <td style="width: 50%; border: none; vertical-align: top;"> "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 </td> </tr> </table>			"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
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Date of the actual completion of the international search		Date of mailing of the international search report		
23 November 1999		03/12/1999		
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 Lejeune, R		

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/09831

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	<p>YAMADA A ET AL: "Molecular cloning of a glycosylphosphatidylinositol-anchored molecule CDw108" JOURNAL OF IMMUNOLOGY., vol. 162, 1 April 1999 (1999-04-01), pages 4094-4100, XP002123609 THE WILLIAMS AND WILKINS CO. BALTIMORE., US ISSN: 0022-1767 99.8% identity in 2001 BP overlap between the sequence in figure 1 and SEQ ID NO 1 page 40094, column 2, paragraph 2</p>	1-14, 16, 19-23
P,X	<p>XU X ET AL: "Human semaphorin K1 is glycosylphosphatidylinositol-linked and defines a new subfamily of viral-related semaphorins" JOURNAL OF BIOLOGICAL CHEMISTRY., vol. 273, no. 35, 28 August 1998 (1998-08-28), pages 22428-22434, XP002113886 AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, BALTIMORE, MD., US ISSN: 0021-9258 abstract the sequence of sema K1 in figure 1 corresponds to seq ID NO 2</p>	1-14, 19-23
P,X	<p>LANGE C ET AL: "New eukaryotic semaphorins with close homology to semaphorins of viruses" GENOMICS, vol. 51, 1 August 1998 (1998-08-01), pages 340-350, XP002113887 SAN DIEGO., US ISSN: 0888-7543 99.8% identity in 2603 bp overlap between the sequence in figure 3 (H-Sema-L) and SEQ ID 1. abstract</p>	1-14, 19-23
E	<p>WO 99 45114 A (ZYMOGENETICS INC) 10 September 1999 (1999-09-10) 99.75% identity in a 2001 BP overlap between SEQ ID NO 1 of W09945114 and SEQ ID NO 1 of the application example 4</p>	1-16, 19-23

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/09831

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ENSSER A ET AL: "Alcephaline herpesvirus type 1 has a semaphorin-like gene" JOURNAL OF GENERAL VIROLOGY., vol. 76, 1995, pages 1063-1067, XP002113888 SOCIETY FOR GENERAL MICROBIOLOGY, READING., GB ISSN: 0022-1317	17
A	the whole document _____	1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 99/ 09831

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:
Remark: Although claim 17
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.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US 99 09831

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claim 18 contains an obvious error. It was searched as "A method of separating cells having semaphorin polypeptide on the surface thereof from a mixture of cells in suspension, comprising contacting the cells in the mixture with a contacting surface having semaphorin binding proteins, and separating the contacting surface and the suspension.

Furthermore, claims 19, 20 and 21 should refer to SEQ ID NOs 1 and 2 instead of resp. 5 and 6.

Finally, claims 23 is dependent on the non-existent claim 31. It was searched as pertaining to an expression vector according to claim 22.

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 99/09831

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
EP 0892047	A	20-01-1999	DE 19729211 A	14-01-1999
			DE 19805371 A	12-08-1999
			AU 7507698 A	21-01-1999
			CA 2237158 A	09-01-1999
			CN 1209436 A	03-03-1999
			CZ 9802149 A	13-01-1999
			HU 9801511 A	28-05-1999
			JP 11235189 A	31-08-1999
			PL 327385 A	18-01-1999
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WO 9945114	A	10-09-1999	NONE	
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