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[Continued on next page]

(54) Title: HUMAN NETRIN RECEPTOR AND USES THEREOF

1 LPESIPSAPG TLPHFIEEPD DAYIIKSNPI ALRCKARPAM QIFFKNGEW
51 VHQNEHVSEE TLDESSGLKV REVFINVTRQ QVEDFHGPEQ YWCQCVAWSH
101 LGTSKSRKAS VRIAYLRKNF EQDPQGREVP IEGMIVLHCR PPEGVPAAEV
151 EWLKNEEPID SEQDENIDTR ADHNLIIROA RLSDSGNYTC MAANIVAKRR
201 SLSATVVVVYV NGGWSSWTEW SACNVRGCRG WQKRSRTCTN PAPLNGGAPC
251 EGMVQKQITC TSLCPVDGSW EVWSEWSVCS PECEHLRIRE CTAPPPRNGG
301 KFCEGLSQES ENCTDGLCIL GIENASDIAL YSGLGAAVVA VAVLVIGVTL
351 YRRSQSDYCV DVIDSSALTG GFQTFNFKTV RQGNLILLNS AMQPDLTVSR
401 TYSGPICLQD PLDKELMTES SLFNPLSDIK VKVQSSFMVS LGVSEAEYH
451 GKNHSRTFPH GNNHSFSTMH PRNKMPYIQN LSSLPTRETEL RTTGVFHGLG
501 GRLVMPNTGV SLLIPHGAIP EENSWEIYMS INQGEPSLQS DGSEVLLSPE
551 VTCGPPDMIV TTPFALTIPH CADVSSEHWN IHLKKRTQQG KWEEVMSVED
601 ESTSCYCLLD PFACHVLLDS FGTYALTGEP ITDCAVKQLK VAVFGCMSCN
651 SLDYNLRVYC VDNTPCAFQE VVSDERHQGG QLLEPKLLH FKGNTFSLQI
701 SVLDIPFFLW RIKPFTACQE VPFVWVCSN RQPLHCAFSL ERYTPTTTQL
751 SKCICIRQLK GHEQILQVQT SILESERETI TFFAQEDSTF PAQTGPKAFK
801 IPYSIRQRIC ATFDTPNAKG KDWQMLAQN SINRNLSYFA TQSSPSAVIL
851 NLWEARHQHD GDLDLACAL EEIGRHTKLSNISESQ

(57) Abstract: The invention is based on the discovery that the INSP017 protein functions as a trans-membrane protein molecule, preferably as a trans-membrane protein molecule of the netrin receptor family.



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TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

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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.

INTERNATIONAL SEARCH REPORT

PCT/GB 02/05856

A. CLASSIFICATION OF SUBJECT MATTER		
IPC 7	C12N15/12 C07K14/705 C12N5/10 C07K16/00 C12Q1/68 G01N33/50 G01N33/53 A61K38/17 A61K39/00 A01K67/027	
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 A61K A01K		
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, WPI Data, PAJ, SEQUENCE SEARCH		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ACKERMAN, S.L. ET AL.: "The mouse rostral cerebellar malformation gene encodes an UNC-5-like protein" NATURE, vol. 386, no. 6627, 24 April 1997 (1997-04-24), pages 838-842, XP001093890 the whole document see especially: abstract and page 841; figure 4 --- -/--	1-6, 8-14, 18-42
<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 :		
"A" document defining the general state of the art which is not considered to be of particular relevance		"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
"E" earlier document but published on or after the international filing date		"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
"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)		"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.
"O" document referring to an oral disclosure, use, exhibition or other means		"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed		
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INTERNATIONAL SEARCH REPORT

PCT/GB 02/05856

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	WO 02 079448 A (INCYTE GENOMICS, INC.) 10 October 2002 (2002-10-10)	1,2,4-6, 8-14, 18-42
P,A	abstract page 6, line 1 - line 8 receptor: GCREC-63 page 7, line 7 -page 12, line 18 page 28, line 8 -page 68, line 8 SEQ ID NOS: 63 and 136 page 92; table 1 page 98; table 2 page 158 -page 159; table 3 page 170; table 4 page 171; table 5 page 172; table 6 page 179 -page 196; claims 1-55,118,191 page 258 -page 260 page 306 -page 307 ---	3
P,X	DATABASE WPI Week 200259 Derwent Publications Ltd., London, GB; AN 2002-552746 XP002246575 -& JP 2002 153290 A (KAZUSA DNA KENKYUSHO) , 28 May 2002 (2002-05-28) cited in the application	1,2,4-6, 8-14, 18-42
P,A	SEQ ID NOS: 1 and 2 page 10 -page 22 ---	3
P,X	WO 02 079398 A (CURAGEN CORPORATION) 10 October 2002 (2002-10-10)	1,2,4-6, 8-14, 18-42
P,A	abstract NOVX clone: 23a page 8, line 17 -page 85, line 2 page 158 -page 162; example 23 page 314, line 7 -page 322, line 4 SEQ ID NOS: 115 and 116 page 404 -page 410; claims 1,2,5-21,23-32 -----	3

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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:
see FURTHER INFORMATION sheet PCT/ISA/210

2. Claims Nos.: **7, 15-17**
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.1

Although claims 32-34 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 claims 19 (as far as in vivo methods are concerned), 24-26 and 35 (as far as in vivo methods are concerned) 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.

Continuation of Box I.2

Claims Nos.: 7, 15-17

Present claims 1(ii) and 7 and dependent claims 2-6, 8-14 and 18-42 relate to a fragment of a polypeptide comprising the amino acid sequence as recited in SEQ ID NO: 34 or SEQ ID NO: 32 "having an antigenic determinant in common with the polypeptide of claim 1(i)".

The claims cover all fragments having this characteristic or property, whereas the application provides no support within the meaning of Article 6 PCT and no disclosure within the meaning of Article 5 PCT for such fragments. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the fragment 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 impossible. Consequently, the search has been carried out for those parts of claim 1(ii) and dependent claims which appear to be clear, supported and disclosed, namely those parts relating to a fragment of a polypeptide comprising the amino acid sequence as recited in SEQ ID NO: 34 or SEQ ID NO: 32 having transmembrane protein function, particularly netrin receptor activity, as mentioned in the description, on page 12, lines 24-27. No search has been carried out for the subject-matter of claim 7.

Furthermore, present claims 13 and 14 and dependent claims 18, 21, 27, 29, 31 and 32-34 relate to a ligand defined by reference to a desirable characteristic or property, namely "... which binds specifically to, and which preferably stimulates the activity of, a polypeptide according to any one of claims 1-7".

The claims cover all ligands 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 ligands. 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 ligand 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

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

impossible. Consequently, the search has been carried out for those parts of claims 13, 14 and dependent claims which appear to be clear, supported and disclosed, namely those parts relating to a ligand which binds specifically to a polypeptide according to any one of claims 1-7, which is an antibody as mentioned in the description, on page 13, lines 13-19.

Moreover, present claims 15-17 and dependent claims 18, 29, 31 and 32-34 relate to a compound defined by reference to a desirable characteristic or property, namely "... that either increases or decreases the level of expression or activity of a polypeptide according to any one of claims 1-7", "... that binds to a polypeptide according to any one of claims 1-7 without inducing any of the biological effects of the polypeptide" and "... which is a natural or modified substrate, ligand, enzyme, receptor or structural or functional mimetic".

The claims cover all compounds having this characteristic or property, whereas the application provides no support within the meaning of Article 6 PCT and no disclosure within the meaning of Article 5 PCT for such compounds. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search 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 impossible. Consequently, no search has been carried out for the subject-matter of claims 15-17 and the corresponding parts of dependent claims 18, 29, 31 and 32-34.

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 EPD 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

PCT/GB 02/05856

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 02079448	A	10-10-2002	WO 02079448 A2	10-10-2002
JP 2002153290	A	28-05-2002	NONE	
WO 02079398	A	10-10-2002	WO 02079398 A2	10-10-2002
			WO 02072757 A2	19-09-2002
			WO 02072771 A2	19-09-2002
			WO 02072770 A2	19-09-2002
			WO 02070660 A2	12-09-2002