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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: KINASES AND PHOSPHATASES

(57) Abstract: Various embodiments of the invention provide human kinases and phosphatases (KPP) and polynucleotides which identify and encode KPP. Embodiments of the invention also provide expression vectors, host cells, antibodies, agonists, and antagonists. Other embodiments provide methods for diagnosing, treating, or preventing disorders associated with aberrant expression of KPP.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/24521

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07K 14/00; C12P 21/06; A61K 38/00
 US CL : 530/350; 435/69.1; 514/2

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)

U.S. : 530/350; 435/69.1; 514/2

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 practicable, search terms used)
 MEDLINE, CAPLUS, AGRICOLA, EMBASE, BIOSIS, WPIDS, GENBANK, GENPEPT, EMBL, SWISSPROT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	Sigma Chemical Company 1993 Catalog Item G5149, page 1067. Item G5149 is a bioactive peptide of Gly-Gln.	1 ----- 9, 17
A	Database GenBank, Accession Number AY057064. SCHUCH et al, "RIM1alpha forms a protein scaffold for regulating neurotransmitter release at the active zone", Nature. 2002, Vol. 415, No. 6869, pages 321-326, Gene Sequence.	1,2,9,10,17-19,56-73
A	Database EMBL, Accession Number Q91Z80. MUKHERJEE et al, 'Direct Submission', Gene Sequence, 2001.	1,2,9,10,17-19,56-73



Further documents are listed in the continuation of Box C.



See patent family 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 application or patent 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	

Date of the actual completion of the international search

25 November 2003 (25.11.2003)

Date of mailing of the international search report

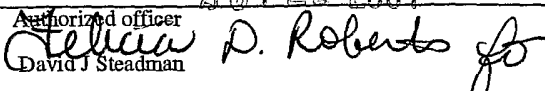
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/24521

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claim Nos.: 21,22,24 and 25
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:
The description fails to describe any physico-chemical property or properties of the claimed agonist/antagonist.
Therefore, a meaningful search for these claims cannot be conducted.
3. ☐ Claim 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:
Please See Continuation 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.: 1,2,9,10,17-19, and 56-73 reciting SEQ ID NO:1

Remark on Protest

☐
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

Groups I-XXVIII, claims 1, 2, 9, 10, 17-19, and 56-73, drawn to the special technical feature of an isolated polypeptide, the first claimed method of making, i.e., a method of making a polypeptide, a composition comprising a polypeptide, and the first claimed method of use, i.e., a method of using a composition comprising a polypeptide for treating a disease. Group I recites SEQ ID NO:1, Group II recites SEQ ID NO:2, Group III recites SEQ ID NO:3,... ..and Group XVIII recites SEQ ID NO:18.

Groups XIX-XXXVI, claims 3-7, 12, 13, 46, 48-55, and 74-91, drawn to the special technical feature of an isolated polynucleotide, a recombinant polynucleotide, a cell, a microarray, and an array. Group XIX recites a nucleic acid encoding SEQ ID NO:1 including SEQ ID NO:19, Group XX recites a nucleic acid encoding SEQ ID NO:2 including SEQ ID NO:20, Group XXI recites a nucleic acid encoding SEQ ID NO:3 including SEQ ID NO:21,... ..and Group XXXVI recites a nucleic acid encoding SEQ ID NO:18 including SEQ ID NO:36.

Groups XXXVII-LIV, claim 8, drawn to the special technical feature of a transgenic organism. Group XXXVII recites a nucleic acid encoding SEQ ID NO:1, Group XXXVIII recites a nucleic acid encoding SEQ ID NO:2, Group XXXIX recites a nucleic acid encoding SEQ ID NO:3,... ..and Group LIV recites a nucleic acid encoding SEQ ID NO:18.

Groups LV-LXXII, claims 11, 31, 32, 34, 37, 38, and 40-43, drawn to the special technical feature of an antibody that binds a polypeptide and a composition comprising an antibody. Group LV recites SEQ ID NO:1, Group LVI recites SEQ ID NO:2, Group LVII recites SEQ ID NO:3,... ..and Group LXXII recites SEQ ID NO:18.

Groups LXXIII-XC, claims 14-16, drawn to the special technical feature of a method of detecting a target polynucleotide. Group LXXIII recites SEQ ID NO:19, Group LXXIV recites SEQ ID NO:20, Group LXXV recites SEQ ID NO:21,... ..and Group XC recites SEQ ID NO:36.

Groups XCI-CVIII, claim 20, drawn to the special technical feature of a method for screening a compound for effectiveness as an agonist of a polypeptide. Group XCI recites SEQ ID NO:1, Group XCII recites SEQ ID NO:2, Group XCIII recites SEQ ID NO:3,... ..and Group CVIII recites SEQ ID NO:18.

Groups CIX-CXXVI, claim 23, drawn to the special technical feature of a method for screening a compound for effectiveness as an antagonist of a polypeptide. Group CIX recites SEQ ID NO:1, Group CX recites SEQ ID NO:2, Group CXI recites SEQ ID NO:3,... ..and Group CXXVI recites SEQ ID NO:18.

Groups CXXVII-CXLIV, claim 26, drawn to the special technical feature of a method for screening a compound that specifically binds to a polypeptide. Group CXXVII recites SEQ ID NO:1, Group CXXVIII recites SEQ ID NO:2, Group CXXIX recites SEQ ID NO:3,... ..and Group CXLIV recites SEQ ID NO:18.

Groups CXLV-CLXII, claim 27, drawn to the special technical feature of a method for screening a compound that modulates the activity of a polypeptide. Group CXLV recites SEQ ID NO:1, Group CXLVI recites SEQ ID NO:2, Group CXLVII recites SEQ ID NO:3,... ..and Group CLXII recites SEQ ID NO:18.

Groups CLXIII-CLXXX, claim 28, drawn to the special technical feature of a method of screening a compound for effectiveness in altering expression of a polynucleotide. Group CLXIII recites SEQ ID NO:19, Group CLXIV recites SEQ ID NO:20, Group CLXV recites SEQ ID NO:21,... ..and Group CLXXX recites SEQ ID NO:36.

Groups CLXXXI-CXCVIII, claim 29, drawn to the special technical feature of a method of assessing toxicity of a test compound using a probe. Group CLXXXI recites SEQ ID NO:19, Group CLXXXII recites SEQ ID NO:20, Group CLXXXIII recites SEQ ID NO:21,... ..and Group CXCVIII recites SEQ ID NO:36.

Groups CXCIX-CCXVI, claims 30, 33, and 35, drawn to the special technical feature of a diagnostic test for a disease or condition. Group CXCIX recites SEQ ID NO:1, Group CC recites SEQ ID NO:2, Group CCI recites SEQ ID NO:3,... ..and Group CCXVI recites SEQ ID NO:18.

INTERNATIONAL SEARCH REPORT

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Groups CCXVII-CCXXXIV, claim 36, drawn to the special technical feature of a method of preparing a polyclonal antibody. Group CCXVII recites SEQ ID NO:1, Group CCXVIII recites SEQ ID NO:2, Group CCXIX recites SEQ ID NO:3,... ..and Group CCXXXIV recites SEQ ID NO:18.

Groups CCXXXV-CCLII, claim 39, drawn to the special technical feature of a method of preparing a monoclonal antibody. Group CCXXXV recites SEQ ID NO:1, Group CCXXXVI recites SEQ ID NO:2, Group CCXXXVII recites SEQ ID NO:3,... ..and Group CCLII recites SEQ ID NO:18.

Groups CCLIII-CCLXX, claim 44, drawn to the special technical feature of a method for detecting a polypeptide using an antibody. Group CCLIII recites SEQ ID NO:1, Group CCLIV recites SEQ ID NO:2, Group CCLV recites SEQ ID NO:3,... ..and Group CCLXX recites SEQ ID NO:18.

Groups CCLXXI-CCLXXXVIII, claim 45, drawn to the special technical feature of a method for purifying a polypeptide using an antibody. Group CCLXXI recites SEQ ID NO:1, Group CCLXXII recites SEQ ID NO:2, Group CCLXXIII recites SEQ ID NO:3,... ..and Group CCLXXXVIII recites SEQ ID NO:18.

Groups CCLXXXIX-CCCVI, claim 47, drawn to the special technical feature of a method of generating an expression profile. Group CCLXXXIX recites SEQ ID NO:19, Group CCXC recites SEQ ID NO:20, Group CCXCI recites SEQ ID NO:21,... ..and Group CCCVI recites SEQ ID NO:36.

The technical feature linking groups I-CCCVI is a polynucleotide. The inventions listed as Groups I-CCCVI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

According to PCT Rule 13.2 and to the guidelines in Section (f)(i)(B)(1) of Annex B of the PCT Administrative Instructions, all alternatives of a Markush Group must have a common structure. Although the polypeptides of Groups I-XVIII, the polynucleotides of Groups XIX-XXXVI, and the antibodies of Groups LV-LXXII share a common property or activity, the compounds are not regarded as being of similar nature because all alternatives do not share a common structure.

According to PCT Rule 13.2 unity of invention exists only when there is a shared same or corresponding special technical feature among the claimed inventions. The nucleic acids of Groups XIX-XXXVI, the polypeptides of Groups I-XVIII, the transgenic organisms of Groups XXXVII-LIV, and the antibodies of Groups LV-LXXXII share no special technical feature as the nucleic acids of Groups XIX-XXXVI, particularly the nucleic acid of claim 13, encompasses nucleic acids that are not the same as the nucleic acid of the transgenic organism of Groups XXXVII-LIV and do not correspond to the polypeptide of Groups I-XVIII and instead encode nucleic acids that would encode polypeptides that would not elicit the antibodies of Groups LV-LXXII.

According to PCT Rule 13.2 unity of invention exists only when the shared same or corresponding special technical feature is a contribution over the prior art. The inventions of Groups I-CCCVI do not relate to a single general inventive concept because they lack the same or corresponding special technical feature. The technical feature of Groups XIX-XXXVI is a polynucleotide, which is shown by Database GenBank Accession Number AB020704 to lack novelty or inventive step because Database GenBank Accession Number AB020704 teaches a polynucleotide comprising at least 60 nucleotides of SEQ ID NO:19 (see attached sequence comparison) and does not make it a contribution over the prior art.

37 CFR 1.475 does not provide for the inclusion of multiple methods of use within the main invention. Accordingly, the methods of Groups XCI-CLXII and CCXVII-CCLXXXVIII do not have unity of invention with the polypeptides of Groups I-XVIII.

In the absence of any response from Applicant, this Authority will establish the International Search Report based on the main invention, i.e., the claims of Group I. The claims drawn to the main invention are as follows: claims 1, 2, 9, 10, 17-19, and 56 reciting SEQ ID NO:1.