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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: DIAGNOSTICS AND THERAPEUTICS FOR DISEASES ASSOCIATED WITH G PROTEIN-DEPENDENT RECEPTOR KINASE 1 (GRK1)

(57) Abstract: The invention provides a human GRK1 which is associated with cardiovascular diseases, endocrinological diseases, metabolic diseases, cancer, gastroenterological diseases, inflammation, hematological diseases, muscle skeleton diseases, neurological diseases and urological diseases. The invention also provides assays for the identification of compounds useful in the treatment or prevention of cardiovascular diseases, endocrinological diseases, metabolic diseases, cancer, gastroenterological diseases, inflammation, hematological diseases, muscle skeleton diseases, neurological diseases and urological diseases. The invention also features compounds which bind to and/or activate or inhibit the activity of GRK1 as well as pharmaceutical compositions comprising such compounds.



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INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2005/004898

A. CLASSIFICATION OF SUBJECT MATTER
G01N33/574 G01N33/68

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)
G01N

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, BIOSIS, EMBASE, 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	MAEDA A ET AL: "Low Expression of alpha A-crystallins and rhodopsin kinase of photoreceptors in retinal dystrophy Rat" INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE, ASSOCIATION FOR RESEARCH IN VISION AND, US, vol. 40, no. 12, 1999, pages 2788-2794, XP002980288 ISSN: 0146-0404 the whole document figure 5 ----- -/--	1-25

☒ 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.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 2005/004898

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KHANI SHAHROKH C ET AL: "Biochemical evidence for pathogenicity of rhodopsin kinase mutations correlated with the Oguchi form of congenital stationary night blindness" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol. 95, no. 6, 17 March 1998 (1998-03-17), pages 2824-2827, XP002347177 ISSN: 0027-8424 the whole document	1-25
X	----- DATABASE EPO Proteins [Online] 26 November 2002 (2002-11-26), "Sequence 456 from Patent W002061087." XP002347184 retrieved from EBI accession no. EPOP:AX549171 Database accession no. AX549171 abstract & DATABASE WPI Section Ch, Week 200304 Derwent Publications Ltd., London, GB; Class B04, AN 2003-046718 & WO 02/061087 A2 (LIFESPAN BIOSCIENCES INC) 8 August 2002 (2002-08-08) abstract	19-21
A	----- BLENNOW KAJ ET AL: "CSF markers for pathogenic processes in Alzheimer's disease: Diagnostic implications and use in clinical neurochemistry." BRAIN RESEARCH BULLETIN, vol. 61, no. 3, 15 August 2003 (2003-08-15), pages 235-242, XP002347178 ISSN: 0361-9230 the whole document	1-25
A	----- ZHAO XINYU ET AL: "Molecular forms of human rhodopsin kinase (GRK1)" JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 273, no. 9, 27 February 1998 (1998-02-27), pages 5124-5131, XP002347179 ISSN: 0021-9258 the whole document -----	1-25

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2005/004898

Box II Observations where certain claims were found unsearchable (Continuation of item 2 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.: 26
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy
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 III Observations where unity of invention is lacking (Continuation of item 3 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.:
claims 1-26 partial

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

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

Inventions 1-10: claims 1-26 [partial]

diagnostics, therapeutics and methods of screening for therapeutics, relating to diseases associated with GRK1, in which the diseases are: 1) cardiovascular diseases, 2) endocrinological diseases, 3) metabolic diseases, 4) cancer, 5) gastroenterological diseases, 6) inflammation, 7) hematological diseases, 8) muscle skeleton diseases, 9) neurological diseases, 10) urological diseases.
