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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: SUBSTANCES AND PHARMACEUTICAL COMPOSITIONS FOR THE INHIBITION OF GLYOXALASES AND THEIR USE TO COMBAT CANCER

(57) Abstract: The present invention pertains to substances of the formula (I) wherein X is O or S; and R1-R4 are defined in the claims as inhibitors of glyoxalase I and/or II, pharmaceutical compositions comprising one or more compounds according to formula (I) and the use of one or more compounds according to formula (I) for the treatment of diseases associated with increased glycolytic metabolism. In one embodiment, the disease is cancer.



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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. A61P35/00 A61K31/7028 A61K31/22 A61K31/255

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)
A61K

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, PAJ, WPI Data, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HALL S S ET AL: "Synthesis and evaluation of alpha-hydroxythiol esters as antitumor agents and glyoxalase I inhibitors." JOURNAL OF MEDICINAL CHEMISTRY. OCT 1977, vol. 20, no. 10, October 1977 (1977-10), pages 1239-1242, XP002405487 ISSN: 0022-2623 the whole document	1-4,6, 39,40
X	PATENT ABSTRACTS OF JAPAN vol. 008, no. 056 (C-214), 14 March 1984 (1984-03-14) & JP 58 213716 A (JIYUNICHI IWAMURA), 12 December 1983 (1983-12-12) abstract	1-4, 6-10,12, 13,18-38
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

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| <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> | <p>"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</p> <p>"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</p> <p>"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.</p> <p>"&" document member of the same patent family</p> |
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Date of the actual completion of the international search 6 November 2006	Date of mailing of the international search report 27/12/2006
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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 Damiani, Federica
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INTERNATIONAL SEARCH REPORT

International application No
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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	DE 44 07 484 A1 (KREUTZ, WERNER, PROF. DR., 79219 STAUFEN, DE) 8 June 1995 (1995-06-08) column 3, line 13 - line 32 claims 1-6	1,4, 6-10, 12-15, 18-38
X,E	WO 2006/078774 A (THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA; THOMPSON, CRAIG, B; LU) 27 July 2006 (2006-07-27) page 15 claims 1-26	1-5,7-40
X,E	US 2006/160702 A1 (SOUDANT ETIENNE ET AL) 20 July 2006 (2006-07-20) paragraphs [0047], [0062], [0133], [0154] claims 18,23	7-40
A	VINCE R ET AL: "STUDIES ON THE INHIBITION OF GLYOXALASE I BY S-SUBSTITUTED GLUTATHIONES" JOURNAL OF MEDICINAL CHEMISTRY, AMERICAN CHEMICAL SOCIETY. WASHINGTON, US, vol. 14, no. 5, 1971, pages 402-404, XP002044716 ISSN: 0022-2623 the whole document	1-40
X	US 2003/232884 A1 (FINK MITCHELL P) 18 December 2003 (2003-12-18) cited in the application page 1	1-13, 17-38
X	WO 03/088955 A (CRITICAL THERAPEUTICS, INC; FINK, MITCHELL, P) 30 October 2003 (2003-10-30) cited in the application page 2 - page 4	1-13, 17-38
X	WO 02/074301 A (UNIVERSITY OF PITTSBURGH OF THE COMMONWEALTH SYSTEM OF HIGHER EDUCATIO) 26 September 2002 (2002-09-26) cited in the application page 10 - page 11 claim 1	1-13, 17-38

INTERNATIONAL SEARCH REPORT

International application No.
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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.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claim 40 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:
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:

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

Information on patent family members

International application No

PCT/EP2006/003464

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