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ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: METHODS FOR TREATING CARBONIC ANHYDRASE MEDIATED DISORDERS

(57) Abstract: The current invention provides methods to treat or prevent carbonic anhydrase mediated diseases or disorders. The method generally comprises administering a tricyclic compound having a sulfonamide group to a subject wherein the compound inhibits carbonic anhydrase.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61P27/02 A61P3/12 A61P7/10 A61P21/00 A61P43/00
A61K45/06 A61K31/635

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 A61P 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)

CHEM ABS Data, SCISEARCH, BIOSIS, MEDLINE, EMBASE, EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	EP 0 826 676 A (JAPAN TOBACCO INC) 4 March 1998 (1998-03-04) example 14 page 19; examples 1-2,2 --- -/--	1-14, 35-38, 49,50

☒ 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.
- *Z* document member of the same patent family

Date of the actual completion of the international search

11 December 2003

Date of mailing of the international search report

14. 01. 2004

Name and mailing address of the ISA

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Internat Application No
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X	M. MATSUSHITA, ET AL.: "Pharmacological profile of JTE-522, a novel prostaglandin H synthase-2-inhibitor, in rats." INFLAMMATION RESEARCH, vol. 46, no. 11, 1997, pages 461-466, XP001176824 figure 5 ---	1-14, 35-38, 49,50
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Y	WO 02 13800 A (STEFANSSON EINAR) 21 February 2002 (2002-02-21) claims 1,2,4,16-26 ---	37,38
Y	KATHLEEN PARFITT: "Martindale, The Complete Drug Reference, 32nd Edition" 1999, PHARMACEUTICAL PRESS, LONDON, UK XP002264621 page 778 ---	37,38
A	US 5 547 975 A (TALLEY JOHN J ET AL) 20 August 1996 (1996-08-20) column 31; table 11 ---	1-50
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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.
A	BRADWELL A R ET AL: "METHAZOLAMIDE TREATMENT OF ACUTE MOUNTAIN SICKNESS" CLINICAL SCIENCE (LONDON), vol. 79, no. SUPPL. 23, 1990, page 9P XP008025380 SUMMER MEETING OF THE MEDICAL RESEARCH SOCIETY, WARWICK, ENGLAND, UK, JULY 5-6, 1990. CLIN SCI (LOND ISSN: 0143-5221 abstract ---	1-14,39, 40,49,50
A	RITSCHER WOLFGANG A ET AL: "Pharmacokinetics of acetazolamide in healthy volunteers after short- and long-term exposure to high altitude" JOURNAL OF CLINICAL PHARMACOLOGY, vol. 38, no. 6, June 1998 (1998-06), pages 533-539, XP008025379 ISSN: 0091-2700 abstract ---	1-14,39, 40,49,50
A	PORCELLI M JAY ET AL: "A trek to the top: A review of acute mountain sickness" JOURNAL OF THE AMERICAN OSTEOPATHIC ASSOCIATION, vol. 95, no. 12, 1995, pages 718-720, XP000886754 ISSN: 0098-6151 abstract ---	1-14,39, 40,49,50
Y	DALAKAS M C ET AL: "TREATMENT OF PERMANENT MUSCLE WEAKNESS IN FAMILIAL HYPO KALEMIC PERIODIC PARALYSIS" MUSCLE AND NERVE, vol. 6, no. 3, 1983, pages 182-186, XP008025373 ISSN: 0148-639X the whole document ---	1-14, 41-44, 49,50
Y	DALAKAS M C ET AL: "TREATMENT OF PERMANENT MUSCLE WEAKNESS IN HYPO KALEMIC PERIODIC PARALYSIS" NEUROLOGY, vol. 30, no. 4, 1980, pages 379-380, XP008025374 32ND ANNUAL MEETING OF THE AMERICAN ACADEMY OF NEUROLOGY, NEW ORLEANS, LA., USA, MAY 1-3, 1980. NEUR ISSN: 0028-3878 the whole document ---	1-14, 41-44, 49,50

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INTERNATIONAL SEARCH REPORT

Internal Application No
PCT/US 03/04494

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	ELLIS P P: "URINARY CALCULI WITH METHAZOLAMIDE THERAPY" DOCUMENTA OPHTHALMOLOGICA, vol. 34, no. 2, 1973, pages 137-142, XP008025381 ISSN: 0012-4486 the whole document	1-14, 41-50
Y	D.P. BROOKS, ET AL.: "Renal effects of cyclooxygenase inhibitors in volume-depleted dogs." INFLAMMOPHARMACOLOGY, vol. 8, no. 1, 2000, pages 69-79, XP008025345 the whole document	1-50

INTERNATIONAL SEARCH REPORT

International application No.
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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:

Although claims 1-50 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.
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:

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.:

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:

1. Claims: 1-14 (partially), 15-34 and 49-50 (partially)

The use of compounds according to formula of claim 1 for treating intra ocular pressure, optionally combined with a prostaglandin, a beta adrenergic antagonist, an adrenergic agonist, a cholinergic agonist or a carbonic anhydrase inhibitor.

2. Claims: 1-14 (partially), 35-38 and 49-50 (partially).

The use of compounds according to formula of claim 1 for treating edema, optionally combined with a diuretic.

3. Claims: 1-14 (partially), 39-40 and 49-50 (partially).

The use of compounds according to formula of claim 1 for treating altitude sickness, optionally combined with a carbonic anhydrase inhibitor.

4. Claims: 1-14 (partially), 41-44 and 49-50 (partially).

The use of compounds according to formula of claim 1 for the treatment of periodic paralysis, optionally combined with potassium.

5. Claims: 1-14 (partially), 45-48 and 49-50 (partially)

The use of compounds according to formula of claim 1 for the treatment of cystine calculi or uric acid calculi, optionally combined with a diuretic.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Present claims 1, 14, 20, 21 and 23 relate to a large number of undefined compounds in terms of "a prodrug thereof" (claims 1 and 14), "a prostaglandin" (claims 20 and 21) and "a prostaglandin analog" (claims 20, 21 and 23). In fact, the claims contain so many options that a lack of clarity and conciseness within the meaning of Article 6 PCT arises to such an extent as to render a meaningful search of the claims impossible. In addition, present claims 1-50 relate to an extremely large number of possible compounds. In this respect, it should especially be referred to the definition of "X" in the formula of claims 1-3 resulting in to a large number of structurally different compounds. Support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the compounds claimed. 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.

Furthermore, present claims 16-19, 24, 26, 28, 30, 32 and 33 relate to a combination preparation in which the second agent defined by reference to a desirable characteristic or property, namely "an aqueous humor modulating agent" (claims 16-19), "a prostaglandin FP receptor antagonist" (claim 24), "a beta adrenergic antagonist" (claim 26), "an adrenergic agonist" (claim 28), "cholinergic agonist" (claim 30) and "a carbonic anhydrase inhibitor or a carbonic anhydrase inhibitor I, II or IV isosyme inhibitor" (claims 32 and 33), or "a diuretic" (claims 37 and 47).

The claims cover all compounds having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT for only a very limited number of such compounds. 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 compound by reference to its pharmacological profile. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole scope of the claims impossible.

Consequently, the search of the invention has been carried out for those parts of the application which do appear to be clear and concise, namely to those parts relating to the compounds as defined by the formula in claim 5 with A = a condensed or non condensed pyrazole, an imidazole, a 1,3-oxazole and a 1,2-oxazole in relation to the treatment of elevated intra ocular pressure, edema, altitude sickness, periodic paralysis, cystine calculi or uric acid calculi, optionally in combination with the specific compounds described in claims 22, 25, 27, 29, 31, 34, 38, 40, 44 or 48.

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

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

Intern: Application No
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