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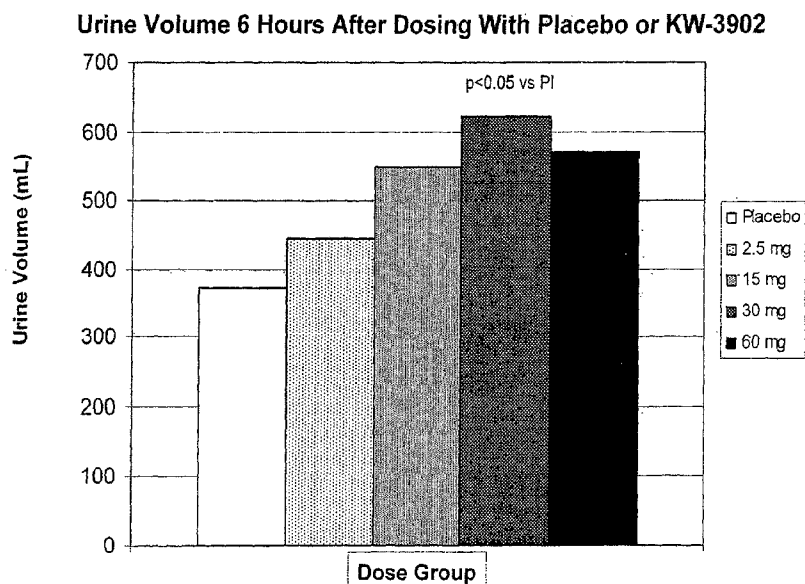
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[Continued on next page]

(54) Title: METHOD OF IMPROVED DIURESIS IN INDIVIDUALS WITH IMPAIRED RENAL FUNCTION



(57) Abstract: Disclosed is a pharmaceutical composition comprising a therapeutically effective amount of KW-3902, or a salt, ester, amide, metabolite, or prodrug thereof, and a non-adenosine modifying diuretic. Also disclosed are methods of inducing a diuretic effect in an animal comprising the step of administering a therapeutically effective amount of KW-3902, or a salt, ester, amide, metabolite, or prodrug thereof, in combination with second pharmaceutical composition capable of inducing a diuretic effect.

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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) EP0-Internal, WPI Data, BIOSIS		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2004/096228 A (NOVACARDIA INC [US]; WIDDER KENNETH J [US]; OTSUKI LAUREN [US]; DITTRI) 11 November 2004 (2004-11-11) claims 1-6, 13-18 page 6, lines 1,2	1,6-14
X	EP 0 970 696 A (KYOWA HAKKO KOGYO KK [JP]) 12 January 2000 (2000-01-12) claims 1,2,5,8,10 examples 1,2	1,6-14
X	US 2005/004145 A1 (WIDDER KENNETH J [US] ET AL) 6 January 2005 (2005-01-06) claims 1,15,16,21	1,6-14
	-/--	
☒ 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 *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 *&* document member of the same patent family		
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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 Bonzano, Camilla

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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.
E	WO 2007/149285 A (NOVACARDIA INC [US]; DITTRICH HOWARD [US]; FARMER BRIAN [US]; WOODS RA) 27 December 2007 (2007-12-27) claims 1,6-11 -----	1-14
E	WO 2007/149283 A (NOVACARDIA INC [US]; DITTRICH HOWARD [US]; FARMER BRIAN [US]; WOODS RA) 27 December 2007 (2007-12-27) claims 1-5 page 14, paragraph 61 -----	1,6-14
E	WO 2007/149366 A (NOVACARDIA INC [US]; DITTRICH HOWARD [US]; FARMER BRIAN [US]; WOODS RA) 27 December 2007 (2007-12-27) claims 1,7,8,12 -----	1-6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/013887

Box No. 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 claims 1-14 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:
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 No. 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 fees, this Authority did not invite payment of additional fees.
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 and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2004096228 A	11-11-2004	AU 2004233852 A1 BR PI0409699 A CA 2522971 A1 CN 1859913 A EP 1620107 A1 JP 2006524699 T KR 20060004959 A MX PA05011371 A	11-11-2004 18-04-2006 11-11-2004 08-11-2006 01-02-2006 02-11-2006 16-01-2006 01-12-2005
EP 0970696 A	12-01-2000	NONE	
US 2005004145 A1	06-01-2005	US 2006030572 A1 US 2006035911 A1	09-02-2006 16-02-2006
WO 2007149285 A	27-12-2007	US 2006293312 A1	28-12-2006
WO 2007149283 A	27-12-2007	US 2007293463 A1	20-12-2007
WO 2007149366 A	27-12-2007	US 2007293518 A1	20-12-2007