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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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(54) Title: KV1.5 POTASSIUM CHANNEL INHIBITORS

(57) Abstract: The present invention relates to 4-oxo-1,3,8-triaza-spiro[4.5]decanes which are useful as Kv1.5 potassium channel inhibitors providing atrial-selective antiarrhythmic activity. The present invention further relates to compositions and methods for treating atrial-selective antiarrhythmia.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/071586

A. CLASSIFICATION OF SUBJECT MATTER
INV. C07D471/10 A61K31/505 A61P9/06

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)
C07D

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, BEILSTEIN Data, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01/40231 A (SQUIBB BRISTOL MYERS CO [US]; ATWAL KARNAIL S [US]; VACCARO WAYNE [US]) 7 June 2001 (2001-06-07) page 1, line 18 - page 7, line 28 page 116; example 355 claim 1	1-73

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[X] Further documents are listed in the continuation of Box C.

[X] 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

Date of the actual completion of the international search	Date of mailing of the international search report
14 December 2007	14/01/2008

Name and mailing address of the ISA/	Authorized officer
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	Bissmire, Stewart

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/071586

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DU LÜ-PEI ET AL: "The pharmacophore hypotheses of I(Kr) potassium channel blockers: novel class III antiarrhythmic agents." BIOORGANIC & MEDICINAL CHEMISTRY LETTERS 20 SEP 2004, vol. 14, no. 18, 20 September 2004 (2004-09-20), pages 4771-4777, XP002462369 ISSN: 0960-894X abstract page 4775; figure 3; compound 40	1-73
A	WO 2005/058890 A (SOLVAY PHARM GMBH [DE]; MENTZEL MATTHIAS [DE]; REICHE DANIA B [DE]; BR) 30 June 2005 (2005-06-30) the whole document	1-73

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/071586

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. [X] Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 66-67 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 allsearchable 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 reportcovers 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

Information on patent family members

International application No
PCT/US2007/071586

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0140231 A	07-06-2001	AR 029457 A1	02-07-2003
		AU 781862 B2	16-06-2005
		AU 1812701 A	12-06-2001
		BR 0016166 A	24-06-2003
		CA 2393809 A1	07-06-2001
		CN 1407985 A	02-04-2003
		CZ 20021949 A3	12-03-2003
		EP 1237891 A1	11-09-2002
		HU 0301834 A2	29-09-2003
		JP 2004507442 T	11-03-2004
		MX PA02005533 A	31-10-2002
		NO 20022649 A	06-06-2002
		NZ 518663 A	26-11-2004
		PL 364926 A1	27-12-2004
		RU 2296766 C2	10-04-2007
WO 2005058890 A	30-06-2005	AU 2004298436 A1	30-06-2005
		BR PI0417161 A	06-03-2007
		CA 2547633 A1	30-06-2005
		JP 2007513922 T	31-05-2007
		KR 20060123473 A	01-12-2006
		MX PA06005675 A	17-08-2006