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BZ, CA, CH, CL, 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, IR, IS, JP, KE, KG, 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,  
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(54) Title: IMIDAZO(4,5-5) PYRIDIN-2-YL AMIDES AS Kv7 CHANNEL ACTIVATORS

(57) Abstract: Compounds represented by formula 1 can be potent and/or partially selective for the Kv7.2/7.3 heteromultimer. They may be useful in treating disorders related to seizures, pain, neurotransmitter release, etc.



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**A. CLASSIFICATION OF SUBJECT MATTER****C07D 471/04(2006.01)i, C07D 487/04(2006.01)i, C07D 405/12(2006.01)i, A61K 31/437(2006.01)i**

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 471/04Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
Korean utility models and applications for utility models  
Japanese utility models and applications for utility modelsElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
eKOMPASS(KIPO internal) & Keywords: imidazopyridine, kv7 channel**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 2003-0181480 A1 (MCMAHON, G. et al.) 25 September 2003 See pages 4-6.	1-3 35
X A	WO 01-89499 A2 (THE PROCTER & GAMBLE COMPANY) 29 November 2001 See page 2.	1-3 35
X A	HASEGAWA, M. et al. 'Discovery of novel benzimidazoles as potent inhibitors of TIE-2 and VEGFR-2 tyrosine kinase receptors' . J. Med. Chem., 2007, Vol. 50, pages 4453-4470. See compounds 43, 44 in Table 6.	1-3 35
X A	WO 2007-039297 A1 (LABORATORIOS ALMIRALL, S.A.) 12 April 2007 See example 56.	1-3 35
A	WO 2010-094645 A1 (NEUROSEARCH A/S) 26 August 2010 See the whole document.	1-3,35

**I** 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 application or patent 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

17 September 2014 (17.09.2014)

Date of mailing of the international search report

**18 September 2014 (18.09.2014)**

Name and mailing address of the ISA/KR

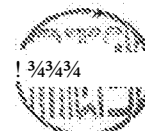


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**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

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. : 38-40  
because they relate to subject matter not required to be searched by this Authority, namely:  
Claims 38-40 are directed to a treatment method of the human body by therapy, and thus relate to a subject matter which this International Searching Authority is not required to search under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT.
2.  Claims Nos. : 9,39-40  
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:  
The claims refer to multiple dependent claims that refer to other multiple dependent claims, therefore, the meaning of the technical feature to which they refer is vague and unclear.
3.  Claims Nos. : 4-8,10-34,36-38  
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. IIAs all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. IIAs all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of any additional fees.
3. IIAs 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. IINo 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**

- II The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- II 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.
- II No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2014/030686

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Information on patent family members

International application No.

**PCT/US2014/030686**

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