

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
13 August 2009 (13.08.2009)

PCT

(10) International Publication Number
WO 2009/100294 A3

(51) International Patent Classification:

C07D 401/12 (2006.01) C07D 471/02 (2006.01)
C07D 471/04 (2006.01)

(21) International Application Number:

PCT/US2009/033329

(22) International Filing Date:

6 February 2009 (06.02.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/026,886 7 February 2008 (07.02.2008) US
61/143,628 9 January 2009 (09.01.2009) US

(71) Applicant (for all designated States except US): **ABBOTT LABORATORIES** [US/US]; 100 Abbott Park Road, Abbott Park, Illinois 60064 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MORTELL, Kathleen H.** [US/US]; 2018 North Oakley Avenue, Chicago, Illinois 60647 (US). **NERSESIAN, Diana L.** [US/US]; 4207 Coral Berry Path, Apt. 103, Gurnee, Illinois 60031 (US). **SCHRIMPF, Michael R.** [US/US]; 327 Cambridge Drive, Grayslake, Illinois 60030 (US). **LEE, Chih-Hung** [US/US]; 569 South Central Park Place, Vernon Hills, Illinois 60061 (US). **GOPALAKRISHNAN, Murali** [US/US]; 1838 South Waxwing Lane, Libertyville, Illinois 60048 (US).

(74) Agents: **VEPACHEDU, Sreenivasarao** et al.; Abbott Laboratories, Dept. 0377, Bldg. AP6A-1A, 100 Abbott Park Road, Abbott Park, Illinois 60064-6008 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, 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, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

12 November 2009

(54) Title: AMIDE DERIVATIVES AS POSITIVE ALLOSTERIC MODULATORS AND METHODS OF USE THEREOF

(57) Abstract: The invention relates to novel amide derivatives that are PAMs of neuronal nicotinic receptors, compositions comprising the same, processes for preparing such compounds, and methods for using such compounds and compositions.



WO 2009/100294 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/033329**A. CLASSIFICATION OF SUBJECT MATTER***C07D 401/12(2006.01)i, C07D 471/04(2006.01)i, C07D 471/02(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)

IPC as above

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 practicable, search terms used)
eKOMPASS(KIPO internal), CAS(online), PUBMED, Google**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004-0204409 A1 (KAZUO, ANDO, et al.) 14 October 2004 See whole document	1-3, 8, 11-13, 20
A	US 2006-0106011 A1 (BOCK, MARK G., et al.) 18 May 2006 See whole document	1-3, 8, 11-13, 20
A	WO 01-12187 A2 (ASTRAZENECA UK LTD.) 22 February 2001 See page 13	1-3, 8, 11-13, 20
P,X	WO 2008-019357 A2 (MICROBIA, INC.), 14 February 2008 See page 186	1-3, 8, 11-13, 20

☐ 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 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 2009 (17.09.2009)

Date of mailing of the international search report

17 SEPTEMBER 2009 (17.09.2009)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-
gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

Kim, Sung Gil

Telephone No. 82-42-481-5602



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2009/033329**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.: 4-7, 9, 10, 14-19
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 4-7, 9, 10, 14-19 are directed to a method of treatment of the human body by therapy or diagnostic methods. (Article 17(2)(a)(i) and Rule 39.1(iv)PCT)
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 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 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/US2009/033329

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004-204409 A1	14.10.2004	None	
US 2006-106011 A1	18.05.2006	None	
WO 01-12187 A2	22.02.2001	AU 6583400 A AU 2000-65834 A1 BR 0013368 A CA 2380775 A1 CN 1379774 A EP 1210343 A2 GB 9919411 D0 IL 147821 D0 JP 2003-507327 A KR 10-2002-0020817 A PA 02001598 A NO 20020765 A NZ 517059 A ZA 200200669 A	13.03.2001 14.08.2000 07.05.2002 22.02.2001 13.11.2002 05.06.2002 20.10.1999 14.08.2002 25.02.2003 15.03.2002 02.07.2002 17.04.2002 28.05.2004 24.04.2003
WO 2008-019357 A2	14.02.2008	AU 2007-281747 A1 EP 2049520 A2 KR 10-2009-0054984 A WO 2008-019357 A3	07.08.2007 22.04.2009 01.06.2009 21.08.2008