

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 May 2010 (14.05.2010)

(10) International Publication Number
WO 2010/053861 A3

PCT

(51) International Patent Classification:

C07D 401/12 (2006.01) **C07D 413/14** (2006.01)
C07D 401/14 (2006.01) **A61K 31/4427** (2006.01)
C07D 405/14 (2006.01) **A61P 3/00** (2006.01)
C07D 403/14 (2006.01) **A61P 3/04** (2006.01)
C07D 411/14 (2006.01)

(21) International Application Number:

PCT/US2009/062956

(22) International Filing Date:

2 November 2009 (02.11.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/112,333 7 November 2008 (07.11.2008) US
61/161,854 20 March 2009 (20.03.2009) US

(71) Applicant (for all designated States except US): **H. LUNDBECK A/S** [DK/DK]; 9 Ottiliavej, DK-2500 Valby-Copenhagen (DK).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **PETERSON, John** [US/US]; 220 Post Road, Slate Hill, NY 10973 (US). **CHEN, Chien-an** [US/US]; 151-58 28th Avenue, Flushing, NY 11345 (US). **CHEN, Bin** [CN/US]; 14 Oakmont Terrace, East Windsor, NJ 08520 (US). **WU, Lingyun** [CN/US]; 277c Reichelt Road, New Milford, NJ 07646 (US). **SABIO, Michael** [US/US]; 292 Oak Street, Apt. B, Ridgewood, NJ 07450-2527 (US).

(74) Agent: **LIM, Kitae**; Lundbeck Research USA, Inc., 215 College Road, Paramus, NJ 07652 (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, 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, 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, PE, 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, SM, 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:

2 September 2010

(54) Title: BIOLOGICALLY ACTIVE AMIDES

(57) Abstract: The present invention is directed to biologically active amides which are ligands at the NPY Y5 receptor. The invention further provides a pharmaceutical composition comprising a therapeutically effective amount of a compound of the invention and a pharmaceutically acceptable carrier. This invention also provides a method of treating a subject suffering from certain disorders which comprises administering to the subject an amount of a compound of the subject invention. Furthermore, this invention also provides uses of a compound of the invention for the manufacture of a medicament for treating a subject suffering from certain disorders.



WO 2010/053861 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/062956**A. CLASSIFICATION OF SUBJECT MATTER**

C07D 401/12(2006.01)i, C07D 401/14(2006.01)i, C07D 405/14(2006.01)i, C07D 403/14(2006.01)i, C07D 411/14(2006.01)i, C07D 413/14(2006.01)i, A61K 31/4427(2006.01)i, A61P 3/00(2006.01)i, A61P 3/04(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 401/12; A61K 31/137; A61K 31/277; A61K 31/5377; C07D 295/00; C07D 403/02; C07D 49/14

Documentation 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 models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: piperazin, pyridin, amide, neuropeptide Y, NPY Y5

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002-0115715 A1 (DAX, SCOTT L. et al.) 22 August 2002 See abstract, page 16, claims 1, 14-16	1-23
A	WO 02-22592 A2 (SCHERING CORPORATION) 21 March 2002 See abstract, claims 1, 23, 27, 28	1-23
A	WO 2006-108965 A2 (CEREP et al.) 19 October 2006 See abstract, claim 6	1-23
A	US 2007-0105853 A1 (TORRENS JOVER, ANTONI et al.) 10 May 2007 See abstract, claims 1, 22, 23	1-23
A	US 2005-0209233 A1 (BLOCK, M. HOWARD et al.) 22 September 2005 See claims 1, 20	1-23



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

29 JUNE 2010 (29.06.2010)

Date of mailing of the international search report

29 JUNE 2010 (29.06.2010)

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

Jung Da Won

Telephone No. 82-42-481-8147



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/062956

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002-0115715 A1	22.08.2002	US 2002-115715 A1 US 2006-0052388 A1 US 6380224 B1 US 7071195 B2	22.08.2002 09.03.2006 30.04.2002 04.07.2006
WO 02-22592 A2	21.03.2002	AU 9454701 A CA 2422013-A1 CN 1474810 A EP 1322628 A2 JP 2004-509108 A MXPA03002263A WO 02-22592A2 WO 02-22592A3	26.03.2002 21.03.2002 11.02.2004 02.07.2003 25.03.2004 24.06.2003 21.03.2002 27.06.2002
WO 2006-108965 A2	19.10.2006	AP 200704218D0 AU 2006-234413 A1 CA 2604773-A1 CN 101198604 A EA 200800157A1 ECSP077894A EP 1879887 A2 FR 2884516 A1 FR 2884516 B1 JP 2008-538749 T KR20080009112A MX2007012847A NI200700260A NO20075322A US 2009-233910 A1 WO 2006-108965 A2 WO 2006-108965 A3	31.10.2007 19.10.2006 19.10.2006 11.06.2008 28.04.2008 26.03.2008 23.01.2008 20.10.2006 22.06.2007 06.11.2008 24.01.2008 25.03.2008 03.03.2009 11.01.2008 17.09.2009 19.10.2006 29.03.2007
US 2007-0105853 A1	10.05.2007	AT 348614 T AU 2004-262482 A1 AU 2004-262491 A1 BR P10412860A CA 2534096-A1 CA 2534101-A1 CN 1829516 A CN 1832745 A DE 602004003829 D1 DE 602004003831 D1 EP 1648458 A1 EP 1648458 B1 EP 1651220 A1 EP 1651220 B1 ES 2222833 A1 ES 2222833 B1 ES 2279419 T3	15.01.2007 17.02.2005 17.02.2005 03.10.2006 17.02.2005 17.02.2005 06.09.2006 13.09.2006 01.02.2007 01.02.2007 26.04.2006 20.12.2006 03.05.2006 20.12.2006 01.02.2005 01.03.2006 16.08.2007

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/062956

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		JP 2007-500162 T	11.01.2007
		JP 2007-500169 A	11.01.2007
		MXPA06001140A	24.04.2006
		MXPA06001226A	15.05.2006
		N020060553A	02.02.2006
		N020060605A	07.02.2006
		US 2007-105853 A1	10.05.2007
		US 2008-119516 A1	22.05.2008
		WO 2005-013988 A1	17.02.2005
		WO 2005-013988 A8	09.11.2006
		WO 2005-013990 A1	17.02.2005
US 2005-0209233 A1	22.09.2005	AR028414A1	07.05.2003
		AU 5237201 A	20.11.2001
		BR 0110548 A	01.04.2003
		CA 2406634-A1	15.11.2001
		CN 1440401 A	03.09.2003
		EP 1278739 A1	29.01.2003
		GB 0010757 D0	28.06.2000
		ILB152230D0	29.05.2003
		JP 2003-532723 A	05.11.2003
		JP 2003-532723 T	05.11.2003
		KR 10-2002-0093975 A	16.12.2002
		MXPA02010563A	10.03.2003
		N020025286A	04.11.2002
		NZ522188A	30.04.2004
		US 2003-225097 A1	04.12.2003
		US 2005-209233 A1	22.09.2005
		US 6967216 B2	22.11.2005
		US 7332492 B2	19.02.2008
		WO 01-85714 A1	15.11.2001
		ZA 200208674A	10.02.2004

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2009/062956**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.: 24
because they relate to subject matter not required to be searched by this Authority, namely:
Claim 24 pertains to methods for treatment of the human body by therapy/diagnostic methods, and thus relate to a subject matter which this International Searching Authority is not required, under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulation under the PCT, to search.
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.