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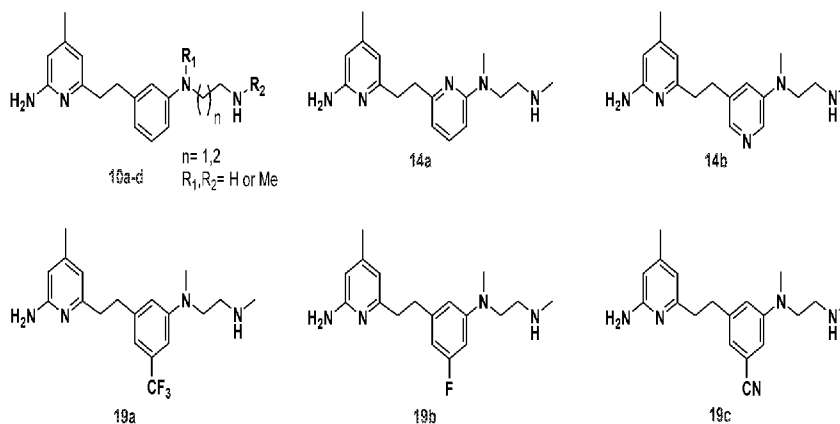
- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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

27 October 2016

(54) Title: MAMMALIAN AND BACTERIAL NITRIC OXIDE SYNTHASE INHIBITORS

Figure 15



(57) Abstract: Compounds and related methods for inhibition of mammalian and bacterial nitric oxide synthase.

A. CLASSIFICATION OF SUBJECT MATTER

C07D 401/14(2006.01)i, C07D 401/10(2006.01)i, C07D 401/12(2006.01)i, C07D 401/06(2006.01)i, A61K 31/444(2006.01)i, A61K 31/4439(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 401/14; A61K 31/445; C07D 401/12; C07D 401/10; C07D 401/04; C07D 401/06; A61K 31/444; A61K 31/4439

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), STN (Registry, Caplus), Google & Keywords: Nitric oxide synthase inhibitor, aminopyridines, NOS, mammalian, bacterial, gram-positive, aminoquinolines

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HOLDEN, J. K. et al., "Structural and biological studies on bacterial nitric oxide synthase inhibitors", Proc. Natl. Acad. Sci. USA., 2013, Vol. 110, No. 45, pp. 18127-18131. See abstract: page 18127; figure 2.	1-16, 21-34
Y		35-36
X	US 2013-0040359 A1 (NORTHWESTERN UNIVERSITY) 14 February 2013 See claims 1, 16; paragraphs [0035], [0039], [0086]-[0103], examples 22-30; figure 5.	1-16
A		21-36
X	US 2004-0229911 A1 (SALTARELLI, M. D. et al.) 18 November 2004 See abstract; paragraphs [0096], [0253], [0255], [0258], [0516].	1, 11
X	US 2014-0221366 A1 (HEINRICH, T. et al.) 07 August 2014 See abstract; paragraph [0007]; table 3.	1
X	KISHII, N. et al., "The extraction and transport of metal ions by 6,6'-diamino-2,2'-bipyridine Derivatives", Journal of the Chemical Society, Dalton transactions, 1985, No.2, pp. 373-378. See abstract; page 373.	1

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

19 August 2016 (19.08.2016)

Date of mailing of the international search report

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Name and mailing address of the ISA/KR

International Application Division

Korean Intellectual Property Office

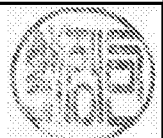
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2015/059061

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CINELLI, M. A. et al., "Simplified 2-Aminoquinoline-Based Scaffold for Potent and Selective Neuronal Nitric Oxide Synthase Inhibition", Journal of Medicinal Chemistry, 28 January 2014, Vol. 57, No. 4, pp. 1513-1530. See abstract; page 1517, left column, page 1521, left column; figures 1, 2.	35-36
PX	HOLDEN, J. K. et al., "Nitric Oxide Synthase as a Target for Methicillin-Resistant Staphylococcus aureus", Chemistry & biology, 18 June 2015, Vol. 22, No. 6, pp. 785-792. See the whole document.	1-16,21-36
PX	HOLDEN, J. K. et al., "Structure-Based Design of Bacterial Nitric Oxide Synthase Inhibitors", Journal of Medicinal Chemistry, 18 December 2014, Vol. 58, No. 2, pp. 994-1004. See abstract; pages 994-995, 999; compounds 1-7; figure 1.	1-16,21-36

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.: 17-20
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 17-20 pertain to methods for treatment of the human body by surgery or therapy, and thus relate to a subject matter which this International Searching Authority is not required to search (PCT Article 17(2)(a)(i) and PCT Rule 39.1(iv)).
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:

Group 1: Claims 1-16, 21-25

Inventions related to a compound of Formula (claims 1-16), and a method of affecting bacterial nitric oxide synthase comprising contacting a bacterium with a compound selected from compounds of claims 12 and 14 (claims 21-25).

Group 2: Claims 26-36

Inventions related to a method of affecting a bacterial nitric oxide synthase comprising contacting a bacterium with a compound selected from compounds of a formula A, B or C.

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 any 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

Information on patent family members

International application No.

PCT/US2015/059061

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2013-0040359 A1	14/02/2013	US 8932842 B2	13/01/2015
US 2004-0229911 A1	18/11/2004	None	
US 2014-0221366 A1	07/08/2014	AU 2012-280725 A1	20/02/2014
		CA 2840883 A1	10/01/2013
		CN 103649074 A	19/03/2014
		EP 2729459 A1	14/05/2014
		JP 2014-520767 A	25/08/2014
		US 9199962 B2	01/12/2015
		WO 2013-004332 A1	10/01/2013