

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PC72115A	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/IB2015/051988	International filing date (<i>day/month/year</i>) 18 March 2015 (18-03-2015)	(Earliest) Priority Date (<i>day/month/year</i>) 1 April 2014 (01-04-2014)
Applicant PFIZER INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☒

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

☒

the international application in the language in which it was filed

☐

a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐

This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6**bis**(a)).

c. ☐

With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐

Certain claims were found unsearchable (See Box No. II)

3. ☐

Unity of invention is lacking (see Box No III)

4. With regard to the **title**,

☐

the text is approved as submitted by the applicant

☒

the text has been established by this Authority to read as follows:

CHROMENE AND 1,1A,2,7B-TETRAHYDROCYCLOPROPA[C]CHROMENE PYRIDOPYRAZINEDIONES AS
GAMMA-SECRETASE MODULATORS

5. With regard to the **abstract**,

☐

the text is approved as submitted by the applicant

☒

the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. _____

☐

as suggested by the applicant

☐

as selected by this Authority, because the applicant failed to suggest a figure

☐

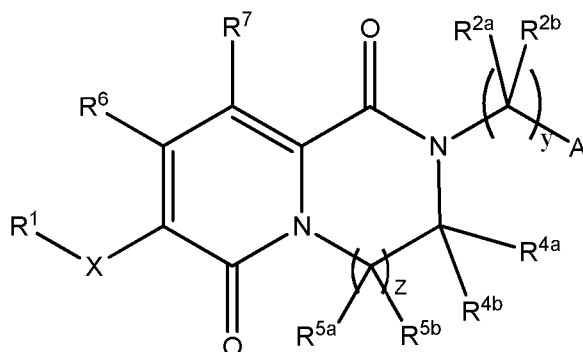
as selected by this Authority, because this figure better characterizes the invention

b. ☐

none of the figures is to be published with the abstract

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

Compounds and pharmaceutically acceptable salts of the compounds are disclosed, wherein the compounds have the structure of Formula I



Formula I

wherein X, R¹, R^{2a}, R^{2b}, R^{4a}, R^{4b}, R^{5a}, R^{5b}, R⁶, R⁷, y and z are as defined in the specification. Corresponding pharmaceutical compositions, methods of treatment, methods of synthesis, and intermediates are also disclosed. These compounds are γ -secretase modulators, useful for the treatment of neurodegenerative and/or neurological disorders such as Alzheimer's disease and Down's syndrome.

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2015/051988

A. CLASSIFICATION OF SUBJECT MATTER

INV. C07D471/04 A61K31/4985 A61P25/28
ADD.

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 practicable, search terms used)

EPO-Internal, CHEM ABS Data, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2013/171712 A1 (JANSSEN PHARMACEUTICALS INC [US]) 21 November 2013 (2013-11-21)	1-10
Y	claims 1,14; compounds 105-107,206,207 -----	11-22
Y	MARTIN PETTERSSON ET AL: "Design, Synthesis, and Pharmacological Evaluation of a Novel Series of Pyridopyrazine-1,6-dione [gamma]-Secretase Modulators", JOURNAL OF MEDICINAL CHEMISTRY, vol. 57, no. 3, 13 February 2014 (2014-02-13), pages 1046-1062, XP055156862, ISSN: 0022-2623, DOI: 10.1021/jm401782h table 2 ----- -/-	1-22



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

4 May 2015

Date of mailing of the international search report

12/05/2015

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Schuemacher, Anne

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2015/051988

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2012/252758 A1 (PETTERSSON MARTIN YOUNGJIN [US] ET AL) 4 October 2012 (2012-10-04) cited in the application claim 1 -----	1-22
Y	US 2014/088111 A1 (PETTERSSON MARTIN YOUNGJIN [US] ET AL) 27 March 2014 (2014-03-27) claims 1,19 -----	1-22
X,P	WO 2014/111457 A1 (JANSSEN PHARMACEUTICA NV [BE]) 24 July 2014 (2014-07-24) claims 1,14; examples B5,B17 -----	1-22
E	WO 2015/049616 A1 (PFIZER [US]) 9 April 2015 (2015-04-09) claims 1,16; example 68 -----	1-22

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2015/051988

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2013171712	A1	21-11-2013	
		AU 2013261023 A1	30-10-2014
		CA 2870347 A1	21-11-2013
		EP 2850083 A1	25-03-2015
		IL 235659 A	01-02-2015
		KR 20150009548 A	26-01-2015
		WO 2013171712 A1	21-11-2013

US 2012252758	A1	04-10-2012	
		AR 085748 A1	23-10-2013
		CA 2830027 A1	04-10-2012
		EP 2691393 A1	05-02-2014
		JP 2014510747 A	01-05-2014
		TW 201300384 A	01-01-2013
		US 2012252758 A1	04-10-2012
		US 2014045790 A1	13-02-2014
		UY 33978 A	31-10-2012
		WO 2012131539 A1	04-10-2012

US 2014088111	A1	27-03-2014	
		AU 2013319845 A1	26-02-2015
		CA 2882386 A1	27-03-2014
		TW 201425311 A	01-07-2014
		US 2014088111 A1	27-03-2014
		US 2015072990 A1	12-03-2015
		UY 35039 A	30-04-2014
		WO 2014045156 A1	27-03-2014

WO 2014111457	A1	24-07-2014	NONE

WO 2015049616	A1	09-04-2015	NONE
