

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PC040220A	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/IB2020/055992	International filing date (<i>day/month/year</i>) 24 June 2020 (24-06-2020)	(Earliest) Priority Date (<i>day/month/year</i>) 28 June 2019 (28-06-2019)
Applicant ARRAY BIOPHARMA 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 6 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:

QUINAZOLIN-4-ONE DERIVATIVES USEFUL FOR THE TREATMENT OF BRAF-ASSOCIATED DISEASES AND DISORDERS

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. 4

- ☒ 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

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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.:
because they relate to subject matter not required to be searched by this Authority, namely:
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:

see additional sheet

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 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.:

1-36, 38

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.

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A. CLASSIFICATION OF SUBJECT MATTER INV. C07D239/90 A61P35/00 C07D239/91 C07D401/12 C07D403/12 C07D405/04 C07D405/12 C07C271/28 A61K31/517 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 A61P C07C A61K 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 <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>WO 2012/118492 A1 (ARRAY BIOPHARMA INC [US]; GENENTECH INC [US] ET AL.) 7 September 2012 (2012-09-07) cited in the application paragraph [00204] - paragraph [00206]; claim 1 -----</td> <td>1-7,9, 19-36</td> </tr> <tr> <td>Y</td> <td>WENGLOWSKY STEVE ET AL: "Highly potent and selective 3-N-methylquinazoline-4(3H)-one based inhibitors of B-RafV600Ekinase", BIOORGANIC & MEDICINAL CHEMISTRY LETTERS, PERGAMON, AMSTERDAM, NL, vol. 24, no. 8, 13 March 2014 (2014-03-13), pages 1923-1927, XP028841756, ISSN: 0960-894X, DOI: 10.1016/J.BMCL.2014.03.007 tables 1-4; compounds 10-25 ----- -/-</td> <td>1-7,9, 19-36</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	WO 2012/118492 A1 (ARRAY BIOPHARMA INC [US]; GENENTECH INC [US] ET AL.) 7 September 2012 (2012-09-07) cited in the application paragraph [00204] - paragraph [00206]; claim 1 -----	1-7,9, 19-36	Y	WENGLOWSKY STEVE ET AL: "Highly potent and selective 3-N-methylquinazoline-4(3H)-one based inhibitors of B-RafV600Ekinase", BIOORGANIC & MEDICINAL CHEMISTRY LETTERS, PERGAMON, AMSTERDAM, NL, vol. 24, no. 8, 13 March 2014 (2014-03-13), pages 1923-1927, XP028841756, ISSN: 0960-894X, DOI: 10.1016/J.BMCL.2014.03.007 tables 1-4; compounds 10-25 ----- -/-	1-7,9, 19-36
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Y	WENGLOWSKY STEVE ET AL: "Highly potent and selective 3-N-methylquinazoline-4(3H)-one based inhibitors of B-RafV600Ekinase", BIOORGANIC & MEDICINAL CHEMISTRY LETTERS, PERGAMON, AMSTERDAM, NL, vol. 24, no. 8, 13 March 2014 (2014-03-13), pages 1923-1927, XP028841756, ISSN: 0960-894X, DOI: 10.1016/J.BMCL.2014.03.007 tables 1-4; compounds 10-25 ----- -/-	1-7,9, 19-36									
☒ 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 30 July 2020		Date of mailing of the international search report 28/09/2020									
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 Johnson, Claire									

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2019/060611 A1 (ABM THERAPEUTICS INC; CHEN CHEN [US]) 28 March 2019 (2019-03-28) claims 1,49 -----	1-7,9, 19-36

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Information on patent family members

International application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2012118492	A1	07-09-2012	NONE

WO 2019060611	A1	28-03-2019	AU 2018338098 A1 07-05-2020
		CA 3076202 A1 28-03-2019	
		CN 111247152 A 05-06-2020	
		EP 3684772 A1 29-07-2020	
		KR 20200055034 A 20-05-2020	
		US 2020247813 A1 06-08-2020	
		WO 2019060611 A1 28-03-2019	

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-36, 38

Compounds possessing a quinazolinone ring system which is substituted on the 5-position by an R2 group which is CH3, CD3 or CCH.

2. claim: 37

The compounds of formula (45).
