

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference BHC178018 WO	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/EP2018/070552	International filing date (<i>day/month/year</i>) 30 July 2018 (30-07-2018)	(Earliest) Priority Date (<i>day/month/year</i>) 4 August 2017 (04-08-2017)
Applicant BAYER ANIMAL HEALTH GMBH		

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:

QUINOLINE DERIVATIVES FOR TREATING INFECTIONS WITH HELMINTHS

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

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2018/070552

A. CLASSIFICATION OF SUBJECT MATTER

INV. C07D405/14 C07D413/14 C07D401/04 C07D413/04 C07D417/04
A61P33/00 A61K31/4709

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 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, WPI Data, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2015/078800 A1 (BAYER CROPSOURCE AG [DE]) 4 June 2015 (2015-06-04) claims 1-15, 18-20	1-18
A	WO 2013/064461 A2 (BAYER IP GMBH [DE]) 10 May 2013 (2013-05-10) claims 1-15	1-18
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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

2 October 2018

Date of mailing of the international search report

10/10/2018

Name and mailing address of the ISA/

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Marzi, Elena

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2018/070552

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Hans Suschitzky ET AL: "Synthesis of heterocyclic compounds. Part XXX. Reactions of o-alkylamino- and o-dialkylamino-anilines with some [alpha][beta]-unsaturated carbonyl compounds", J.C.S. Perkin I, 1 January 1975 (1975-01-01), pages 2409-2413, XP055511143, US DOI: 10.1039/P19750002409 ISBN: 978-0-12-377650-1 Retrieved from the Internet: URL:http://pubs.rsc.org/en/content/article/pdf/1975/p1/p19750002409 [retrieved on 2018-09-28] page 2411; compound 38 -----	10
X	LOU SHI ET AL: "Copper(II)-Catalyzed Aerobic Oxidative Desulfative 6[pi] Electrocyclization: Efficient Synthesis of Diverse 4-Aminoquinolines", ADVANCED SYNTHESIS & CATALYSIS, vol. 359, no. 14, 17 July 2017 (2017-07-17), pages 2457-2470, XP055511432, DE ISSN: 1615-4150, DOI: 10.1002/adsc.201700410 page 2461; compound 3k -----	10
X	JIANRONG LIU ET AL: "Synthesis and in vitro evaluation of new fluorinated quinoline derivatives with high affinity for PDE5: Towards the development of new PET neuroimaging probes", EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY, vol. 136, 19 April 2017 (2017-04-19), pages 548-560, XP055511441, FR ISSN: 0223-5234, DOI: 10.1016/j.ejmech.2017.03.091 page 552; compounds 30a, 30b ----- -/--	10

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2018/070552

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GARUDACHARI B ET AL: "Click chemistry approach: Regioselective one-pot synthesis of some new 8-trifluoromethylquinoline based 1,2,3-triazoles as potent antimicrobial agents", EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY, EDITIONS SCIENTIFIQUE ELSEVIER, PARIS, FR, vol. 74, 11 January 2014 (2014-01-11), pages 324-332, XP028623316, ISSN: 0223-5234, DOI: 10.1016/J.EJMECH.2014.01.008 page 325; compound 3 page 326; compound 9 page 326; compounds 7a-7c -----	10
X	A. ZASK ET AL: "Synthesis and SAR of bicyclic heteroaryl hydroxamic acid MMP and TACE inhibitors", BIOORGANIC & MEDICINAL CHEMISTRY LETTERS, vol. 13, no. 8, 1 April 2003 (2003-04-01), pages 1487-1490, XP055431371, AMSTERDAM, NL ISSN: 0960-894X, DOI: 10.1016/S0960-894X(03)00127-6 Scheme 1, page 1488, compounds 4 and 1 (h, o, p, q, r as defined in Table 1) -----	10
X	US 2012/076732 A1 (FENG YAN [CN] ET AL) 29 March 2012 (2012-03-29) page 95; compounds 16a, 17a -----	10
X,P	WO 2018/087036 A1 (BAYER ANIMAL HEALTH GMBH [DE]) 17 May 2018 (2018-05-17) the whole document	11,12
A,P	Steps 1 and 2, p. 163: step 1, p. 168 step 4, p. 181 step 1, p. 184 steps 2 and 3, p. 185 steps 2,3, p. 186 table 3a; compounds It-1 to It-8 -----	1-10, 13-18

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2018/070552

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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