

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL SEARCH REPORT**

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 241520041WO1	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2016/049709	International filing date ( <i>day/month/year</i> ) 31 August 2016 (31-08-2016)	(Earliest) Priority Date ( <i>day/month/year</i> ) 31 August 2015 (31-08-2015)
Applicant  BOEHRINGER INGELHEIM VETMEDICA 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:

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. 7  
 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/US2016/049709

## Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.c of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of a sequence listing:
- a.  forming part of the international application as filed:
- in the form of an Annex C/ST.25 text file.
  - on paper or in the form of an image file.
- b.  furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
- c.  furnished subsequent to the international filing date for the purposes of international search only:
- in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
  - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
2.  In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

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PCT/US2016/049709

A. CLASSIFICATION OF SUBJECT MATTER  
INV. A61K39/12 A61P31/00  
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)  
A61K C12N

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, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ANNE-LIE BLOMSTROM ET AL: "Astrovirus as a possible cause of congenital tremor type AII in piglets?", ACTA VETERINARIA SCANDINAVICA, vol. 56, no. 1, 16 December 2014 (2014-12-16), XP021207657, BIOMED CENTRAL LTD, LO ISSN: 1751-0147, DOI: 10.1186/S13028-014-0082-Y abstract ----- -/--	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 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 December 2016

Date of mailing of the international search report

19/12/2016

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Wagner, René

## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2016/049709

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	<p>BAILEY L. ARRUDA ET AL: "Identification of a Divergent Lineage Porcine Pestivirus in Nursing Piglets with Congenital Tremors and Reproduction of Disease following Experimental Inoculation", PLOS ONE, vol. 11, no. 2, E0150104, 24 February 2016 (2016-02-24), XP055319736, DOI: 10.1371/journal.pone.0150104 the whole document</p>	1-23
X,P	<p>-----</p> <p>DATABASE ENA [Online]</p> <p>2 February 2016 (2016-02-02), "Porcine pestivirus 1 isolate ISDVL2014016573 polyprotein gene, complete cds.", XP002764270, retrieved from EBI accession no. EM STD:KU194229 Database accession no. KU194229 the whole document</p>	1-23
X,P	<p>-----</p> <p>DATABASE UniProtKB [Online]</p> <p>13 April 2016 (2016-04-13), "RecName: Full=Genome polyprotein {ECO:0000256 SAAS:SAAS00058068};", XP002764271, retrieved from Uniprot Consortium accession no. UNIPROT:A0A120H3X4 Database accession no. A0A120H3X4 sequence</p>	1-23
A	<p>-----</p> <p>BEN. M. HAUSE ET AL: "Discovery of a novel putative atypical porcine pestivirus in pigs in the USA", JOURNAL OF GENERAL VIROLOGY., vol. 96, no. 10, 24 July 2015 (2015-07-24), pages 2994-2998, XP055230950, GB ISSN: 0022-1317, DOI: 10.1099/jgv.0.000251 E-publication date according to Medline: 24.July 2015; abstract</p> <p>-----</p> <p style="text-align: center;">-/--</p>	1-23

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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.
A	<p>DATABASE ENA [Online]</p> <p>7 August 2015 (2015-08-07), "Porcine pestivirus 1 strain 000515 polyprotein mRNA, complete cds.", XP002764272, retrieved from EBI accession no. EM STD:KR011347 Database accession no. KR011347 sequence</p> <p style="text-align: center;">-----</p>	1,2
A	<p>Roman M Pogranichniy: "Retrospective Theses and Dissertations 2005 Search for etiology of porcine reproductive and neurologic syndrome: identification and characterization of a novel swine pestivirus Recommended Citation",</p> <p>1 January 2005 (2005-01-01), pages 1-161, XP055319748, Retrieved from the Internet: URL:<a href="http://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=2330&amp;context=rtd">http://lib.dr.iastate.edu/cgi/viewcont ent.cgi?article=2330&amp;context=rtd</a> [retrieved on 2016-11-15] the whole document</p> <p style="text-align: center;">-----</p>	1-23