

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference ZP000167A	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2019/014113	International filing date (<i>day/month/year</i>) 18 January 2019 (18-01-2019)	(Earliest) Priority Date (<i>day/month/year</i>) 12 March 2018 (12-03-2018)
Applicant ZOETIS SERVICES LLC		

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 8 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. 15

☒

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/US2019/014113

A. CLASSIFICATION OF SUBJECT MATTER

INV. C07K16/22 A61K39/395 A61P19/02 A61P29/00
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)

C07K 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, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012/153121 A1 (NVIP PTY LTD [AU]; GEARING DAVID [AU]) 15 November 2012 (2012-11-15) page 63 - page 69; examples 1-11 page 69 - page 70; examples 12-13 page 71 - page 72; example 14 -----	1-42
X	WO 2012/153122 A1 (NVIP PTY LTD [AU]; GEARING DAVID [AU]) 15 November 2012 (2012-11-15) page 67 - page 77; examples 1-7 page 77 - page 80; examples 8-11 ----- -/-	1-42



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

21 March 2019

Date of mailing of the international search report

24/04/2019

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

Irion, Andrea

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International application No
PCT/US2019/014113

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012/024650 A2 (ABBOTT LAB [US]; LACEY SUSAN E [US]; BARBON JEFFREY A [US]; CHHAYA MEH) 23 February 2012 (2012-02-23) page 61 - page 62; table 1A examples 13-15 page 68, line 8 - page 69, line 3 -----	1-42
X	WO 2013/034900 A1 (GEARING DAVID [AU]; NVIP PTY LTD [AU]) 14 March 2013 (2013-03-14) page 73 - page 74; example 4 page 33, line 20 - page 35, line 5 -----	1-42
X	WO 2013/184871 A1 (ZOETIS LLC [US]) 12 December 2013 (2013-12-12) page 53 - page 68; examples 1-5 page 69; example 7 page 69 - page 74; example 9 -----	1-42
X	DAVID P GEARING ET AL: "A fully caninised anti-NGF monoclonal antibody for pain relief in dogs", BMC VETERINARY RESEARCH, vol. 9, no. 1, 1 January 2013 (2013-01-01) , page 226, XP55248168, GB ISSN: 1746-6148, DOI: 10.1186/1746-6148-9-226 abstract -----	1-42
X	DUNCAN X LASCELLES B ET AL: "A canine-specific anti-nerve growth factor antibody alleviates pain and improves mobility and function in dogs with degenerative joint disease-associated pain", BMC VETERINARY RESEARCH, BIOMED CENTRAL, LONDON, GB, vol. 11, no. 1, 30 April 2015 (2015-04-30) , page 101, XP021221315, ISSN: 1746-6148, DOI: 10.1186/S12917-015-0413-X abstract -----	1-42
X	M.E. GRUEN ET AL: "A Feline-Specific Anti-Nerve Growth Factor Antibody Improves Mobility in Cats with Degenerative Joint Disease-Associated Pain: A Pilot Proof of Concept Study", JOURNAL OF VETERINARY INTERNAL MEDICINE, vol. 30, no. 4, 1 July 2016 (2016-07-01), pages 1138-1148, XP055570894, US ISSN: 0891-6640, DOI: 10.1111/jvim.13972 abstract -----	1-42
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International application No

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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.
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A	----- PANKA D J ET AL: "Defining the structural correlates responsible for loss of arsonate affinity in an Id<CR> antibody isolated from an autoimmune mouse", MOLECULAR IMMUNOLOGY, PERGAMON, GB, vol. 30, no. 11, 1 August 1993 (1993-08-01), pages 1013-1020, XP023969623, ISSN: 0161-5890, DOI: 10.1016/0161-5890(93)90126-V [retrieved on 1993-08-01] the whole document	1-42
A	----- Bj Kobrin ET AL: "A V region mutation in a phosphocholine-binding monoclonal antibody results in loss of antigen binding", The Journal of Immunology, 15 March 1991 (1991-03-15), page 2017, XP055277424, UNITED STATES Retrieved from the Internet: URL: http://www.jimmunol.org/content/146/6/2017.full.pdf the whole document	1-42
A	----- CHIEN N C ET AL: "Significant structural and functional change of an antigen-binding site by a distant amino acid substitution: Proposal of a structural mechanism", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, NATIONAL ACADEMY OF SCIENCES, US, vol. 86, no. 14, 1 January 1989 (1989-01-01), pages 5532-5536, XP009187738, ISSN: 0027-8424, DOI: 10.1073/PNAS.86.14.5532 the whole document ----- -/--	1-42

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A	----- Hiroyuki Kobayashi ET AL: "Tryptophan H33 plays an important role in pyrimidine (6-4) pyrimidone photoproduct binding by a high-affinity antibody A variety of techniques have been used to examine the", Protein Engineering, 1 January 1999 (1999-01-01), pages 879-884, XP055364172, Retrieved from the Internet: URL:https://academic.oup.com/peds/article-pdf/12/10/879/9908089/120879.pdf the whole document	1-42
A	----- CASIPIT C L ET AL: "IMPROVING THE BINDING AFFINITY OF AN ANTIBODY USING MOLECULAR MODELING AND SITE-DIRECTED MUTAGENESIS", PROTEIN SCIENCE, WILEY, US, vol. 7, 1 August 1998 (1998-08-01), pages 1671-1680, XP001007633, ISSN: 0961-8368 the whole document ----- -/--	1-42

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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Information on patent family members

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