

PATENT COOPERATION TREATY

From the:
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing (*day/month/year*)
22 August 2019

Applicant's or agent's file reference
P108939-PCT

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/AU2019/050700

International filing date (*day/month/year*)

03 July 2019

Priority date (*day/month/year*)

03 July 2018

International Patent Classification (IPC) or both national classification and IPC

**A61K 31/05 (2006.01) A61K 31/352 (2006.01) A61K 31/015 (2006.01) A61K 31/01 (2006.01) A61K 31/045 (2006.01)
A61P 25/04 (2006.01)**

Applicant

ZELDA THERAPEUTICS OPERATIONS PTY LTD

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| ☒ | Box No. I | Basis of the opinion |
| ☐ | Box No. II | Priority |
| ☐ | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| ☐ | Box No. IV | Lack of unity of invention |
| ☒ | Box No. V | Reasoned statement under Rule 43 <i>bis</i> .1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement |
| ☒ | Box No. VI | Certain documents cited |
| ☐ | Box No. VII | Certain defects in the international application |
| ☒ | Box No. VIII | Certain observations on the international application |

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA

AUSTRALIAN PATENT OFFICE
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AUSTRALIA
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Date of completion of this opinion

22 August 2019

Authorised Officer

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

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Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established 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 (under Rules 12.3(a) and 23.1(b)).
2. ☐ This opinion has been established taking into account **the rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(b))
3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established 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).
4. ☐ 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.
5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY		International Application No. PCT/AU2019/050700									
Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement										
1. Statement <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; vertical-align: top;"> Novelty (N) </td> <td style="width: 50%; vertical-align: top;"> Claims 11, 19 to 24 and 25A Claims 1 to 10, 12 to 18 and 25 </td> <td style="width: 20%; text-align: center; vertical-align: top;"> YES NO </td> </tr> <tr> <td style="vertical-align: top;"> Inventive step (IS) </td> <td style="vertical-align: top;"> Claims NONE Claims 1 to 25A </td> <td style="text-align: center; vertical-align: top;"> YES NO </td> </tr> <tr> <td style="vertical-align: top;"> Industrial applicability (IA) </td> <td style="vertical-align: top;"> Claims 1 to 25A Claims NONE </td> <td style="text-align: center; vertical-align: top;"> YES NO </td> </tr> </table>			Novelty (N)	Claims 11, 19 to 24 and 25A Claims 1 to 10, 12 to 18 and 25	YES NO	Inventive step (IS)	Claims NONE Claims 1 to 25A	YES NO	Industrial applicability (IA)	Claims 1 to 25A Claims NONE	YES NO
Novelty (N)	Claims 11, 19 to 24 and 25A Claims 1 to 10, 12 to 18 and 25	YES NO									
Inventive step (IS)	Claims NONE Claims 1 to 25A	YES NO									
Industrial applicability (IA)	Claims 1 to 25A Claims NONE	YES NO									
The present invention relates to pharmaceutical compositions comprising delta-9-tetrahydrocannabinol (THC), cannabidiol (CBD) and a terpene fraction, and the use of these in a method for the treatment of pain. 2. CITATIONS AND EXPLANATIONS: <u>CITATIONS</u> D1: US 2016/0106705 A1 (UNITED CANNABIS CORP.) 21 April 2016 D2: US 2015/0313868 A1 (KOTZKER CONSULTING LLC) 05 November 2015 D3: CA 2952335 A1 (DELTA 9 GARDENING B.V., CA) 19 June 2017 D4: WO 2016/044370 A1 (INDIA GLOBALIZATION CAPITAL, INC.) 24 March 2016 D5: US 6949582 B1 (WALLACE, W.H.) 27 September 2005 <u>NOVELTY (N)</u> The invention as claimed in Claims 1 to 10, 12 to 18 and 25 is considered to fail to meet the criteria set out in PCT Article 33(2) as lacking novelty in light of the disclosure of documents D1 to D5. The invention defined in Claims 1 to 10, 12 to 17 and 25 lacks novelty in light of the disclosure of document D1. This document discloses extracts of Cannabis (see paragraph [0027]) comprising delta-9-tetrahydrocannabinol (which is referred to as “THC”, see paragraph [0031]), cannabidiol and a terpene fraction (such as beta-myrcene, linalool or beta-caryophyllene), in the same ratios and amounts as presently claimed (see Claims 1 to 6; paragraphs [0005], [0012], [0016], [0067], [0078], Example 8). The composition may further comprise cannabichromene (see Claim 1; paragraph [0005]). This document further discloses the use of said composition for the treatment of pain (see Claims 40, 50; paragraphs [0024], [0082] to [0083]; Example 8). As a result, said claims are considered to lack novelty. The invention defined in Claims 1 to 10, 13 to 18 and 25 lacks novelty in light of the disclosure of document D2. This document discloses extracts of Cannabis (see paragraphs [0068], [0095]) comprising delta-9-tetrahydrocannabinol (which is referred to as “9THC”), cannabidiol and a terpene fraction (such as myrcene or linalool), in the same ratios and amounts as presently claimed (see Claims 1, 2, 7, 16, 19, 23; paragraphs [0048], [0052], [0076], [0087], [0093], [0113], [0114], [0143]; Example 3). This document further discloses the use of said composition for the treatment of pain such as neuropathic pain (see Claim 12; paragraphs [0041], [0043], [0061], [0076], [0081] to [0082], [0104]). As a result, said claims are considered to lack novelty. The invention defined in Claims 1 to 6, 8, 10, 13 to 18 and 25 lacks novelty in light of the disclosure of document D3. This document discloses extracts of Cannabis comprising delta-9-tetrahydrocannabinol, cannabidiol and a terpene fraction (such as beta-myrcene or linalool), in the same ratios and amounts as presently claimed (see Examples 1 to 4, 7, 10, 11, 12, 14, 16 to 19). This											

Form PCT/ISA/237 (Box V) (revised January 2019)

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document further discloses the use of said composition for the treatment of pain such as neuropathic pain (see paragraphs [0058], [0071]). As a result, said claims are considered to lack novelty.

The invention defined in Claims 1, 6, 8 to 10, 12, 17 to 18 and 25 lacks novelty in light of the disclosure of document D4. This document discloses extracts of Cannabis comprising delta-9-tetrahydrocannabinol, cannabidiol and terpenoids, as well as cannabichromene and cannabigerol, in the same ratios and amounts as presently claimed, and the use of said composition for the treatment of pain such as neuropathic pain (see Claims 1 to 6, 8 to 15; paragraphs [0008], [0011] to [0013], [0015], [0022]; Examples 1 to 3). As a result, said claims are considered to lack novelty.

The invention defined in Claims 1, 12, 14, 17 and 25 lacks novelty in light of the disclosure of document D5. This document discloses extracts of Cannabis comprising delta-9-tetrahydrocannabinol, cannabidiol and terpenoids (such as alpha-pinene), as well as cannabichromene and cannabigerol, and the use of said composition for the treatment of pain (see Claims 1 and 5; Column 8 line 63 to Column 11 line 62; Examples). As a result, said claims are considered to lack novelty.

The invention as claimed in Claims 11, 19 to 24 and 25A is considered to meet the criteria set out in PCT Article 33(2) as possessing novelty in light of the disclosure of documents D1 to D5, in that no prior art disclosure was found which provides a clear and enabled disclosure of the features defined in said claims.

INVENTIVE STEP (IS)

The present invention as claimed in Claims 1 to 10, 12 to 18 and 25 is considered to fail to meet the criteria set out in PCT Article 33(3) as lacking an inventive step in light of the disclosure of documents D1 to D5, for the reasons discussed under Novelty (N) above.

The invention as defined in Claims 11, 18 to 24 and 25A lacks an inventive step in light of the disclosure of document D1, when taken alone. It is submitted that it would be a matter of routine in the pharmaceutical arts for a Person Skilled in the Art (P.S.A.) to consider whether one or more of the composition active ingredients should be enriched, as well as determine appropriate administration regimes, ratios and forms thereof, and appropriate forms of pain to be treated, without the use of an inventive step, and which therefore cannot be considered as contributing to providing a patentable invention.

The invention as defined in Claims 11 to 12, 19 to 24 and 25A lacks an inventive step in light of the disclosure of document D2, when taken alone. It is submitted that it would be a matter of routine in the pharmaceutical arts for a Person Skilled in the Art (P.S.A.) to consider whether one or more of the composition active ingredients should be enriched, include additional known cannabinoid actives, as well as determine appropriate administration regimes, ratios and forms thereof, without the use of an inventive step, and which therefore cannot be considered as contributing to providing a patentable invention.

The invention as defined in Claims 7, 9, 11 to 12, 19 to 24 and 25A lacks an inventive step in light of the disclosure of document D3, when taken alone. It is submitted that it would be a matter of routine in the pharmaceutical arts for a Person Skilled in the Art (P.S.A.) to consider whether one or more of the composition active ingredients should be enriched, include additional known cannabinoid actives, as well as determine appropriate administration regimes, ratios and forms thereof, without the use of an inventive step, and which therefore cannot be considered as contributing to providing a patentable invention.

The invention as defined in Claims 2 to 5, 7, 11, 13 to 16, 19 to 24 and 25A lacks an inventive step in light of the disclosure of document D4, when taken alone. It is submitted that it would be a matter of routine in the pharmaceutical arts for a Person Skilled in the Art (P.S.A.) to consider whether one or more of the composition active ingredients should be enriched, choose between known terpenoids, as well as determine appropriate administration regimes, ratios and forms thereof, without the use of an inventive step, and which therefore cannot be considered as contributing to providing a patentable invention.

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The invention as defined in Claims 2 to 11, 13, 15 to 16, 18 to 24 and 25A lacks an inventive step in light of the disclosure of document D5, when taken alone. It is submitted that it would be a matter of routine in the pharmaceutical arts for a Person Skilled in the Art (P.S.A.) to consider whether one or more of the composition active ingredients should be enriched, choose between known terpenoids, as well as determine appropriate administration regimes, ratios and forms thereof, without the use of an inventive step, and which therefore cannot be considered as contributing to providing a patentable invention.

In light of the above, the invention as claimed in Claims 1 to 25A is considered to fail to meet the criteria set out in PCT Article 33(3) as lacking an inventive step in light of the prior art.

INDUSTRIAL APPLICABILITY (IA)

The invention as claimed in Claims 1 to 25A is considered to meet the requirements of Industrial Applicability because it can be made by, or used in, industry.

P Category Document/s listed in Box VI:

There is a document(s) listed as a P category document in Box VI because it:

- discloses subject matter that is of particular relevance to this application and
- is published before the international filing date but after the priority date of this application.

Under the PCT, only documents published before the priority date of the instant application can deprive the claims of that application of novelty or inventive step.

However, the relevance of a document published after the priority date of the application under consideration is dependent on national law in individual countries.

P category document/s may become significant in the National Phase.

International Application No.

PCT/AU2019/050700

Priority date (valid claim)
(day/month/year)

31 May 2017

30 October 2017

See Supplemental Box for Details

Date of written disclosure
referring to non-written disclosure
(day/month/year)

**WRITTEN OPINION OF THE
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International Application No.

Box No. VIII Certain observations on the international application

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

There are two claims numbered “25”. For the purposes of the present Search and Opinion, these shall be referred to as Claims “25” and “25A”.

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International Application No.

Supplemental Box

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Continuation of: **Box VI**

The invention defined in Claims 1 to 10, 13 to 15, 17 to 18 and 25 lacks novelty in light of the disclosure of WO 2018/222923 A1.

This document discloses pharmaceutical compositions comprising delta-9-tetrahydrocannabinol (which is referred to as “THC”, see paragraphs [0214], [0223]), cannabidiol and a terpene fraction which is (E)-beta-caryophyllene, in the same ratios and amounts as presently claimed (see paragraphs [0008], [0024] to [0030], [0085], [0239], [0253], [0425] Embodiment 63). Said compositions may be extracted from Cannabis (see paragraphs [0199] to [0200]). This document further discloses the use of said composition for the treatment of pain such as neuropathic pain and nociceptive pain (see Claims 40 to 41; paragraphs [0313] to [0315], [0317]; Embodiments 80 to 81). As a result, said claims are considered to lack novelty.

The invention defined in Claims 1 to 10, 12 to 18 and 25 lacks novelty in light of the disclosure of WO 2019/089583 A1.

This document discloses pharmaceutical compositions comprising delta-9-tetrahydrocannabinol (which is referred to as “THC”, see page 8 lines 5 to 8), cannabidiol and a terpene fraction (such as myrcene, alpha-terpinene, linalool or alpha-phellandrene) (see page 8 line 17 to page 9 line 2), in the same ratios and amounts as presently claimed (see Claims 1 to 32). The composition may further comprise one or both of cannabichromene (see page 7 lines 3 to 5) and cannabigerol (see page 4 lines 7 to 8). Said compositions may be extracted from Cannabis (see page 4 lines 32 to 33). This document further discloses the use of said composition for the treatment of for the treatment of pain such as neuropathic pain (see page 6 lines 14 to 25, page 13 lines 3 to 19, page 15 line 25 to page 16 line 4, page 20 lines 25 to 33, page 28 line 28 to page 29 line 33). As a result, said claims are considered to lack novelty.