

PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year)	03.01.2017
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Applicant's or agent's file reference MPCT16-064	FOR FURTHER ACTION See paragraph 2 below
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International application No. PCT/KR2016/009812	International filing date (day/month/year) 01.09.2016	Priority date (day/month/year) 01.09.2015
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International Patent Classification (IPC) or both national classification and IPC
A61K31/7004 (2006.01) i, A23L1/30 (2006.01) i

Applicant
CJ CHEILJEDANG CORPORATION

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 43bis.1(a)(i) with regard to novelty, inventive step or 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 66.1bis(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/KR	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2016/009812

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 (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(a))
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 13*ter*.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 13*ter*.1(a)).
☐ on paper or in the form of an image file (Rule 13*ter*.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/KR2016/009812

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application

☒ claims Nos. 1-4, 7, 8

because:

☒ the said international application, or the said claims Nos. 1-4, 7, 8 relate to the following subject matter which does not require an international search (*specify*):

Claims 1 to 4, 7, and 8 correspond to a method for treatment of the human body by therapy (PCT Rules 43*bis*.1(b) and 67.1(iv)).

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. _____ are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. _____ are so inadequately supported by the description that no meaningful opinion could be formed (*specify*):

☒ no international search report has been established for said claims Nos. 1-4, 7, 8

☐ a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:

☐ furnish a sequence listing in the form of an Annex C/ST.25 text file, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.

☐ furnish a sequence listing on paper or in the form of an image file complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.

☐ pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rule 13*ter*.1(a) or (b).

☐ See Supplemental Box for further details.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2016/009812

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

Novelty (N)	Claims	5, 9	YES
	Claims	6	NO
Inventive step (IS)	Claims	None	YES
	Claims	5-6, 9	NO
Industrial applicability (IA)	Claims	5-6, 9	YES
	Claims	None	NO

2. Citations and explanations:

Reference is made to the following document:

D1: Bioscience, Biotechnology, and Biochemistry, 2013,
vol. 77, no. 5, pp. 1123-1126

1. Novelty and Inventive Step

1.1 Claim 5

Claim 5 pertains to use of a composition comprising D-psicose for suppressing food lipid uptake and/or promoting food lipid excretion.

Document D1, which is the closest prior art document to the present international application, discloses that when fed a high-sucrose diet which induces hyperlipidemia, fat, and insulin resistance in combination with D-psicose, rats significantly decreased in food uptake rate, abdominal visceral fat weight, and brown fat cell weight and even in blood cholesterol level (see tables 2 and 3 in document D1).

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

Claim 5 is different from document D1 in that the former delimits the use of D-psicose to the suppression of food lipid uptake and/or the promotion of food lipid excretion. However, because the suppression of food lipid uptake or the promotion of food lipid excretion is a mechanism which has already been known to reduce body weights and visceral fat and brown fat cell weights, it would be obvious to a person skilled in the art to derive the use of D-psicose in suppressing food lipid uptake and/or promoting food lipid excretion from the disclosure of document D1.

Therefore, claim 5 lacks an inventive step under PCT Article 33(3) in view of document D1.

1.2 Claim 6

Claim 6 pertains to an agent for inhibiting activity of fatty acid synthase (FAS), comprising D-psicose.

Document D1 discloses that D-psicose inhibits the activity of FAS (see lines 6-8 in the right column on page 1123). Hence, claim 6 could be anticipated by document D1.

Therefore, claim 6 lacks novelty under PCT Article 33(2) in view of document D1.

1.3 Claim 9

Claim 9 pertains to a composition comprising D-psicose

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

for preventing, alleviating or treating hyperlipidemia, arteriosclerosis, or fatty liver.

Document D1 discloses that when fed with a high-sucrose diet which induces hyperlipidemia, fat, and insulin resistance in combination with D-psicose, rats decrease significantly in food uptake rate and abdominal visceral fat and brown fat cell weight and even in blood cholesterol level (see tables 2 and 3 in document D1).

Claim 9 is different from document D1 in that the former delimit a composition for prevention, alleviation, or treatment of hyperlipidemia, arteriosclerosis or fatty liver. However, because the affection of visceral fat, adipose cells, and blood cholesterol on the onset of hyperlipidemia, arteriosclerosis, and fatty liver has been widely known in the art, it would be obvious to a person skilled in the art to derive the composition of claim 9 from the disclosure of document D1.

Therefore, claim 9 lacks novelty under PCT Article 33(3) in view of document D1.

2. Industrial Applicability

Claims 5, 6, and 9 are industrially applicable under PCT Article 33(4).