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Datasheet for the decision of 23 October 2018

Case Number: T 1508/13 - 3.3.01

Application Number: 07739883.2

Publication Number: 2111865

IPC: A61K31/7004, A23L1/30, A61P3/04, A61P3/06, A61P3/10, C07H3/02

Language of the proceedings: EN

Title of invention:

UTILIZATION OF THE FUNCTION OF RARE SUGAR AS PROMOTER FOR THE MIGRATION OF GLUCOKINASE FROM NUCLEUS TO CYTOPLASM

Applicants:

National University Corporation Kagawa University
Matsutani Chemical Industry Co., Ltd.

Headword:

D-Psicose/KAWAGA UNIVERSITY

Relevant legal provisions:

EPC Art. 54, 111(1)

Keyword:

Novelty - main request (yes) - new group of patients
Remittal to the department of first instance - (yes)

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It can be changed at any time and without notice.

Decisions cited:
T 1118/12, T 1399/04, T 0893/90, T 0019/86

Catchword:

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Case Number: T 1508/13 - 3.3.01

D E C I S I O N
of Technical Board of Appeal 3.3.01
of 23 October 2018

Appellants: (Applicants)	National University Corporation Kagawa University 1-1, Saiwai-cho Takamatsu-shi, Kagawa 760-8521 (JP) Matsutani Chemical Industry Co., Ltd. 5-3, Kitaitami Itami-shi Hyogo 664-8508 (JP)
Representative:	TBK Bavariaring 4-6 80336 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 12 February 2013 refusing European patent application No. 07739883.2 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	A. Lindner
Members:	J. Molina de Alba
	P. de Heij

Summary of Facts and Submissions

I. The present appeal by the applicants (appellants) lies from the decision of the examining division refusing European patent application No. 07 739 883.2.

II. The following documents are referred to in the present decision:

(6) WO 2006/101118

(6a) EP-A-1 864 669

(8) Matsuo, T. et al., J. Clin. Biochem. Nutr., 2001, 30, 55-65

(14) Matsuo, T. et al., Biosci. Biotechnol. Biochem., 2006, 70(9), 2081-2085

(16d) Report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. Diabetes Care, 2003, 26, Supplement 1, S5-S20

(32) Toyoda, Y. et al., Arch. Histol. Cytol., 2000, 63(3), 243-248

(34) Gloyn, A.L., Human Mutation, 2003, 22, 353-362

(35) So, W.Y. et al., HKMJ, 2000, 6, 69-76

Document (6a) does not belong to the prior art; it was used in the examination proceedings as a translation into English of the prior art document (6), which was written in Japanese. In the present decision, document

(6) is likewise discussed by reference to document (6a).

III. The decision under appeal was based on a main request, filed with the letter of 14 January 2011, and five auxiliary requests, which corresponded to auxiliary requests 1 to 4 and 6 filed with the letter of 14 December 2012 (auxiliary request 5 had been withdrawn during the oral proceedings of 15 January 2013).

IV. In the decision, the examining division considered *inter alia* that the subject-matter in claim 1 of auxiliary request 1 was not novel over the content of documents (6), (8) and (14) because the feature that the disordered conditions were associated with glucokinase activity did not constitute a restriction to a sub-group of patients; rather, it indicated the mechanism underlying the activity of D-psicose. In particular, the examining division held that the application neither proved that patients having a disordered condition associated with glucokinase activity constituted a sub-group nor provided testable criteria for selecting those patients.

V. With their statement of grounds of appeal, the appellants requested that the decision under appeal be set aside and that a patent be granted on the basis of any of the sets of claims filed therewith as main request and auxiliary requests 1 to 19. They also filed a number of documents.

VI. With their letters of 1 October 2013 and 16 January 2015, the appellants filed additional documents and requests, respectively. These included document (32) and a new main request and auxiliary

requests 1 to 11 to replace all previous requests on file.

VII. In a communication dated 6 July 2018, the board introduced documents (16d), (34) and (35) into the proceedings and gave its preliminary opinion. It considered *inter alia* that the subject-matter of auxiliary request 2 filed on 16 January 2015, which was equivalent to auxiliary request 1 underlying the appealed decision, was novel. This was because the group of patients presenting any of the disordered conditions cited in claim 1 associated with glucokinase activity effectively represented a new group of patients and had to be regarded as a limiting feature in the examination of novelty.

VIII. On 21 September 2018, in response to the board's preliminary opinion, the appellants filed a new main request and an auxiliary request 1, which were identical to the then pending auxiliary requests 2 and 3 filed on 16 January 2015. Auxiliary requests 4 to 11 filed with the letter of 16 January 2015 were maintained.

Claim 1 of the main request filed on 21 September 2018 reads as follows:

"*1. A composition containing as the active ingredients D-psicose or D-psicose and D-tagatose for use in preventing the onset of and therapeutically treating disordered conditions in association with glucokinase activity selected from impaired glucose tolerance, type 2 diabetes mellitus, hyperlipidemia, the metabolic syndrome and obesity.*"

IX. Oral proceedings were held before the board on 23 October 2018.

X. The appellants' arguments, where relevant to the present decision, may be summarised as follows:

With respect to the issue of the new group of patients involved in treatment in claim 1 of the main request, the appellants argued that the genetic defect which causes an impairment of glucokinase activity was only one of a group of factors known to cause hyperglycemia, which was at the origin of the disorders listed in the claim. In addition, the target patients could be distinguished from other patients having hyperglycemic related disorders such as type 2 diabetes mellitus by their slower increase in weight when they were submitted to a D-psicose treatment.

Accordingly, claim 1 depicted a new clinical situation that was not anticipated by documents (6), (8) or (14).

XI. The appellants requested that the decision under appeal be set aside and that the case be remitted to the examining division for further prosecution. Alternatively, they requested that a patent be granted on the basis of the set of claims of the main request or of auxiliary request 1 and the adapted description, all filed with the letter of 21 September 2018, or on the basis of the set of claims of the auxiliary requests 4 to 11, filed with the letter of 16 January 2015.

XII. At the end of the oral proceedings, the board's decision was announced.

Reasons for the Decision

1. The appeal is admissible.

2. Claim 1 of the main request at hand, i.e. the one filed with the letter of 21 September 2018, is directed to the use of D-psicose or D-psicose and D-tagatose for preventing or therapeutically treating impaired glucose tolerance, type 2 diabetes mellitus, hyperlipidemia, the metabolic syndrome and obesity in patients in which these conditions are associated with glucokinase activity.

   Documents (6) and (14) teach that D-psicose reduces glucose plasma levels and body fat accumulation, such that it is suitable for preventing or treating among others hyperglycemia in diabetic patients, hyperlipidemia and obesity (see document (6a), paragraph [0008]; and document (14), abstract and page 2084, last paragraph). Similarly, document (8) discloses (see abstract and page 62, last full paragraph) that D-psicose suppresses hepatic lipogenic enzyme activity and reduces abdominal fat accumulation in rats. These documents are however silent on whether the subjects treated had a condition associated with an impairment of glucokinase activity. Therefore, the novelty of the claimed subject-matter depends completely on the question of whether the feature "*in association with glucokinase activity*" is considered to be merely descriptive or whether it defines a new group of patients.

3. According to the established case law (see e.g. T 1118/12, reasons, point 13; T 1399/04, reasons, point

35; T 893/90, reasons, point 4.2; and T 19/86, reasons, point 8), the use of the same compound in the treatment of the same disease can constitute a new therapeutic application, provided that it is carried out on a new group of subjects that can be distinguished from the subjects treated in the prior art by their physiological or pathological status. The board needs then to investigate whether this condition is fulfilled. This is done in the following.

3.1 The invention underlying claim 1 is based on the observation that D-psicose promotes the translocation of glucokinase from the cell nucleus, where it is present in inactive form, to the cytoplasm, where it catalyses the conversion of D-glucose to D-glucose 6-phosphate. This effect makes D-psicose a suitable agent for promoting glucokinase activity in patients suffering from an impaired glucokinase function, since the enhanced glucokinase translocation induced by D-psicose translates in an increase in glucose metabolism and the consequent reduction of hyperglycemia, which is at the origin of impaired glucose tolerance, type 2 diabetes mellitus, hyperlipidemia, the metabolic syndrome and obesity.

3.2 The patients belonging to the group defined in claim 1 represent a minority of those suffering from hyperglycemia related disorders, as taught in documents (16d), (34) and (35):

Document (16d) shows in Table 1, point III.A.2, that, at the filing date, diabetes patients were classified in a relatively large number of etiological groups and that only one of them was primarily affected by an impairment of glucokinase. This is confirmed by documents (34) and (35), which state that a glucokinase

mutation is at the origin of approximately 2 to 5% of European Caucasian patients with gestational diabetes (see document (34), page 354, passage bridging the two columns) or type 2 diabetes (see document (35), page 71, right column, paragraph 2).

But, more importantly, and similarly to the cases underlying decisions T 1118/12 and T 1399/04, the prior art documents (6), (8) and (14) do not associate any of the disordered conditions mentioned therein with an abnormality in glucokinase activity. So, the patient group defined in claim 1 was not disclosed in those documents.

3.3 Furthermore, the patients belonging to this new patient group characterised by the specific pathological status that their condition is associated with an impairment of glucokinase activity, could be identified at the filing date, e.g. following the methods disclosed in document (32) and example 1 of the application:

Document (32) discloses on page 246 a method carried out on cultured rat hepatocytes which allows the observer to assess the degree of glucokinase translocation at different sugar concentrations using immunofluorescence staining. With this method, it is possible to identify whether the animal from which the hepatocytes were collected suffers from an impairment of glucokinase activity. In fact, the authors of document (32) proved in this way that OLETF and GK rats had impaired glucokinase translocation. The same method was used in example 1 of the application to study the ability of different sugars to promote glucokinase translocation from nucleus to cytoplasm. The board also notes that, contrary to the examining division's opinion (see point a on page 5 of the appealed

decision), it was possible to carry out that method without killing the patient, since it merely required collecting a sample of liver tissue from the patient (liver biopsy), a technique that was well-known at the filing date and which did not imply the patient's death.

3.4 Lastly, the direct link between the pathologic status defined in claim 1 and the therapeutic effect achieved by D-psicose (reduction of hyperglycemia by the activation of glucokinase) reveals a new clinical situation.

4. Taking all these facts into account, the board concludes that the use defined in claim 1 fulfils the condition mentioned in paragraph 3 above and hence constitutes a new therapeutic application.

As a result, the subject-matter of claim 1 is novel over the content of documents (6), (8) and (14) (Article 54 EPC).

5. In view of the above, the appeal is allowable and the decision under appeal is to be set aside. The decision under appeal did not, however, address the issue of inventive step from the perspective of the new clinical situation presented in claim 1 of the main request at hand. The board therefore finds it appropriate to allow the appellant's request to remit the case to the examining division for further prosecution (Article 111(1) EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division for further prosecution.

The Registrar: The Chairman:

M. Schalow A. Lindner

Decision electronically authenticated