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**Datasheet for the decision
of 26 April 2012**

Case Number: T 1705/08 - 3.3.10

Application Number: 02749693.4

Publication Number: 1404388

IPC: A61L 27/24, A61L 26/00,
A61F 2/02, C07K 14/78,
C12N 5/00

Language of the proceedings: EN

Title of invention:
Graft prosthesis devices containing renal capsule collagen

Applicant:
Cook Biotech, Inc.

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 123(2), 54, 56

Keyword:
"Amendments allowable (yes) - Novelty (yes) - Inventive step
(yes): Solution not obvious from cited prior art"

Decisions cited:
G 0001/03

Catchword:
-



Case Number: T 1705/08 - 3.3.10

D E C I S I O N
of the Technical Board of Appeal 3.3.10
of 26 April 2012

Appellant:
(Applicant)

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Representative:

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Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 6 February 2008
refusing European patent application
No. 02749693.4 pursuant to Article 97(1) EPC
1973.

Composition of the Board:

Chairman: P. Gryczka
Members: C. Komenda
F. Blumer

Summary of Facts and Submissions

- I. The appeal lies from the decision of the Examining Division posted on 6 February 2008 refusing European patent application No. 02 749 693.4 published with the International publication No. WO 03/002165.
- II. The Examining Division found that the subject-matter of the claims according to the then pending main request, first and second auxiliary requests did not involve an inventive step in the sense of Article 56 EPC. In its decision the Examining Division relied on documents
- (1) WO 01/10355,
 - (4) Frick, H., Leonhardt, H., Starck, D.: "Spezielle Anatomie II - Taschenlehrbuch der gesamten Anatomie - Band 2", Thieme Stuttgart, Germany, 1992, pages 154 to 157,
 - (5) Leonhardt, H.: "Histologie, Zytologie und Mikroanatomie des Menschen - Taschenlehrbuch der gesamten Anatomie - Band 3", Thieme Stuttgart, Germany, 1990, pages 462 to 463 and
 - (6) Löffler, G., Petrides, P.E.: "Biochemie und Pathochemie" Springer Berlin, Germany, 1998, pages 734 to 737.

In particular the Examining Division held that starting from document (1) as closest state of the art the problem consisted at least in providing an alternative collagen-based extracellular matrix material. As it was common general knowledge of a skilled person that an alternative collagen-based extracellular matrix material with high mechanical strength was readily available from the renal capsule of kidneys, as

supported by the documents (4), (5) or (6), the choice of this kind of material as a tissue graft prosthesis material was obvious.

- III. At the oral proceedings held on 26 April 2012 before the Board the Appellant filed a new main request. Claim 1 thereof reads as follows:

"1. A tissue graft prosthesis comprising renal capsule collagen, the tissue graft prosthesis comprising isolated, decellularized renal capsule tissue from a warm blooded, non human vertebrate, wherein the isolated, decellularized renal capsule tissue has an endotoxin level of less than 12 endotoxin units per gram, a nucleic acid content of less than 2 micrograms per milligram, a bioburden level of less than 2 colony forming units per gram, and a virus level of less than 1 plaque forming unit per gram, and wherein the isolated, decellularized renal capsule tissue contains residual compositionally bioactive proteins including Fibroblast Growth Factor-2 and Vascular Endothelial Growth Factor, said graft prosthesis being in the form of a sheet or a tube."

- IV. The Appellant argued that the focus in the closest prior art document (1) was on the tela submucosa, in particular on small intestine submucosa (SIS). This specific collagenous material was known to promote cell growth as mucous tissue had a high cell turnover rate. Starting from document (1) the objective technical problem was at least to provide an alternative tissue graft prosthesis. Even when confronted with the sole problem of providing an alternative tissue graft prosthesis the skilled person would have considered

only those alternative materials, which have properties comparable to those of tela submucosa. As it was common general knowledge that the collagenous material derived from the renal capsule of kidneys was not intended to support a rapid cell turnover or to induce cell growth, but was rather a protective and isolating membrane, the skilled person would not have considered this particular material as an alternative for the tela submucosa used in document (1). Therefore, the subject-matter of claim 1 involved an inventive step.

- V. The Appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request as filed during the oral proceedings before the Board.
- VI. At the end of the oral proceedings the decision of the Board was announced.

Reasons for the Decision

1. The appeal is admissible.
2. *Amendments (Article 123(2) EPC)*

Claim 1 as amended is based on claim 1 as originally filed, wherein the following features from the application as filed have been incorporated:
"the tissue graft prosthesis comprising isolated, decellularized renal capsule tissue" from page 7, lines 9 to 10, "from a warm blooded vertebrate" from original claim 2, "wherein the isolated, decellularized renal capsule tissue has an endotoxin level of less

than 12 endotoxin units per gram, a nucleic acid content of less than 2 micrograms per milligram, a bioburden level of less than 2 colony forming units per gram, and a virus level of less than 1 plaque forming unit per gram" from page 12, lines 17 to 26, "wherein the isolated, decellularized renal capsule tissue contains residual compositionally bioactive proteins including Fibroblast Growth Factor-2 and Vascular Endothelial Growth Factor" from page 21, lines 16 to 19, "said graft prosthesis being in the form of a sheet or a tube" page 13, lines 6 to 10. Further, the word "about" when used in combination with numerical values has been deleted in claim 1. The characterization of the warm blooded vertebrate as being "non human" was included with regard to Article 53(c) EPC. It represents a disclaimer for removing non-patentable subject-matter from the claim, which is not to be objected to under Article 123(2) EPC (G 1/03, OJ 2004, 413, paragraph 2.4.1 of the reasons for the decision).

Claim 2 is based on page 4, lines 29 to 30.

Claim 3 is based on page 5, lines 19 to 20.

Claim 4 is based on original claim 4 with the word "about" being deleted.

Claim 5 is based on page 12, line 27.

Claim 6 is based on page 12, lines 22 to 23.

Claims 7 to 13 are based on original claims 8 to 13 and 15, respectively.

The method claim 14 is based on original claim 17 in combination with the passages on page 4, lines 29 to 30, page 19, lines 9 to 19, page 21, lines 16 to 19, and lines 29 to 30 and page 23, line 23.

Claim 15 is based on page 21, line 29 to 30.

Claim 16 is based on page 12, line 14.

Claims 17 to 22 were based on original claims 21 to 25 and 28 with the word "about" in original claim 25 being deleted.

Therefore, the Board concludes that the requirements of Article 123(2) EPC are fulfilled.

3. *Novelty (Article 54 EPC)*

Novelty of the claimed subject-matter was not objected to in the decision under appeal. The Board on its own sees no reason to take a different view, since none of the cited documents discloses a tissue graft prosthesis comprising renal capsule collagen.

4. *Inventive step (Article 56 EPC)*

4.1 Claim 1 of the application in suit is directed to a tissue graft prosthesis comprising collagenous tissue from a warm blooded non human vertebrate. A similar tissue graft prosthesis is disclosed in document (1).

4.2 Document (1) discloses a tissue graft prosthesis (page 17, lines 1 to 6) comprising isolated, decellularized collagen matrices of tela submucosa (page 8, line 29 to page 9, line 1) derived from the small intestine submucosa of adult pigs (page 10, lines 2 to 6). This collagen matrix has an endotoxin level of less than 12 endotoxin units per gram, a nucleic acid content of less than 2 micrograms per milligram, a bioburden level of less than 2 colony forming units per gram, and a virus level of less than 1 plaque forming unit per gram (page 5, lines 4 to 18; page 16, table 1 and Example 6). Further, it contains various growth factors (page 8,

- lines 25 to 26) and can be provided in the form of a sheet or a tube (page 20, lines 11 to 12, claim 16).
- 4.3 According to the Appellant the objective technical problem to be solved was at least the provision of an alternative tissue graft prosthesis.
- 4.4 As solution to this technical problem the application in suit proposes the tissue graft prosthesis according to claim 1, which is characterized in that it comprises renal capsule collagen.
- 4.5 Having regard to the examples of the application in suit the Board is satisfied that the problem underlying the invention has been successfully solved. In particular the examples 9 to 11 show that the implantation of the claimed graft tissue prosthesis was followed by cell growth without any signs of an inflammatory response.
- 4.6 Finally, it remains to be decided whether or not the proposed solution to the technical problem, namely to provide a tissue graft prosthesis comprising renal capsule collagen instead of the collagenous tissue based on tela submucosa, is obvious in view of the state of the art.
- 4.7 Document (1) is the only document cited in these proceedings which relates to tissue graft prosthesis. According to this closest state of the art the collagenous material used for the there disclosed tissue graft prosthesis is derived from tela submucosa. It is common general knowledge of a skilled person that mucous tissue, such as tela submucosa, supports a high

cell proliferation rate and provides a variety of cell growth factors. According to document (1) tela submucosa is even used as a cell growth substrate (page 20, lines 11 to 19). Therefore, when looking for an alternative tissue graft prosthesis the skilled person would have considered any collagenous material, provided however that it showed the same properties as tela submucosa, i.e. that it supports also high cell proliferation rates. From common general literature, such as disclosed in documents (4) or (5) the renal capsule collagen was easily obtainable, but was a rather rigid biomaterial, which basically is designed to isolate the kidneys from the surrounding body tissue. None of these documents teaches, however, that renal capsule tissue supports a high cell proliferation rate. Consequently, from the cited prior art the skilled person would not have had any incentive to use renal capsule collagen as an alternative for the tissue graft prosthesis of document (1).

- 4.8 Thus, in the Board's judgement document (1) in combination with either of documents (4) or (5) does not render the claimed invention obvious.
- 4.9 For these reasons, the Board concludes that the subject-matter of claim 1 and by the same token that of dependent claims 2 to 13, which include all the features of claim 1, involves an inventive step within the meaning of Article 56 EPC.
- 4.10 The method according to claim 14 relates to the preparation of the extracellular matrix, which is also based on renal capsule tissue. As the use of renal capsule tissue *per se* was not obvious from the cited

prior art (see paragraph 4.7 *supra*) the subject-matter of claim 14 and by the same token that of dependent claims 15 to 22, which include all the features of claim 14, involves an inventive step within the meaning of Article 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to grant a patent on the basis of the main request as filed during the oral proceedings before the Board (claims 1 to 22) and a description yet to be adapted.

The Registrar

The Chairman

C. Rodríguez Rodríguez

P. Gryczka