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**Datasheet for the decision  
of 12 February 2008**

**Case Number:** T 0737/07 - 3.3.10

**Application Number:** 03251057.0

**Publication Number:** 1338291

**IPC:** A61L 27/24

**Language of the proceedings:** EN

**Title of invention:**

Resorbable extracellular matrix for reconstruction of bone

**Applicant:**

ED. GEISTLICH SÖHNE AG FÜR CHEMISCHE INDUSTRIE

**Opponent:**

-

**Headword:**

Matrix for reconstruction of bone/GEISTLICH SÖHNE AG

**Relevant legal provisions:**

EPC Art. 56, 123(2)

**Keyword:**

"Inventive step (no): obvious to try - no deterrent teaching  
in the art"

**Decisions cited:**

T 0249/88, T 1053/93

**Catchword:**

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Case Number: T 0737/07 - 3.3.10

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.10  
of 12 February 2008

**Appellant:** ED. GEISTLICH SÖHNE AG FÜR CHEMISCHE INDUSTRIE  
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**Representative:** Marsden, John Christopher  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 14 December 2006  
refusing European application No. 03251057.0  
pursuant to Article 97(1) EPC 1973.

**Composition of the Board:**

**Chairman:** R. Freimuth  
**Members:** J. Mercey  
J.-P. Seitz

## Summary of Facts and Submissions

I. The appeal lodged on 23 February 2007 lies from the decision of the Examining Division posted on 14 December 2006 refusing European patent application No. 03 251 057.0 with the European publication No. 1 338 291.

II. *Inter alia* the following documents were cited in the examination proceedings:

(4) US-A-5 837 278 and

(6) DE-A-38 10 803.

In the decision under appeal, the Examining Division held that it was obvious to seed the collagen matrices according to document (4) with bone-forming cells with the expectation of improving osteointegration, since it was known from *inter alia* document (6) that synthetic bone implants were known to benefit from seeding with such cells. For these reasons, the subject-matter according to the then pending main request lacked inventive step (Article 56 EPC).

III. At the oral proceedings before the Board held on 12 February 2008, the Appellant (Applicant) submitted a set of eight claims superseding any previous request. Claim 1 of this request read as follows:

"1. A bone healing material comprising a matrix carrying bone-forming cells selected from osteocytes, osteoblasts, stromal stem cells and osteoblast-forming stem cells, wherein said matrix is a purified collagen membrane material derived from natural collagen-

containing animal tissue, said collagen membrane material comprising at least one barrier layer having a smooth face so as to inhibit cell adhesion thereon and act as a barrier to prevent passage of cells therethrough, said barrier layer further having a fibrous face opposite said smooth face, said fibrous face allowing cell growth thereon."

- IV. The Appellant argued that the amendments found support in the application as filed, and thus complied with the requirements of Article 123(2) EPC.

With regard to inventive step, the Appellant submitted that starting from the disclosure of document (4), which disclosed a purified collagen membrane material having the features of the collagen matrix of present claim 1, the problem to be solved by the invention was the provision of an alternative bone-healing material. It argued that the skilled person would not have combined the teaching of document (4) with that of document (6), since this latter document related to bone replacement rather than bone healing, and described an extracorporeal procedure which provided a finished product for implantation. It further argued that the skilled person would have believed there to be a significant risk that the growth promoting properties of the membrane of document (4) would be compromised by the presence of cells in the membrane.

- V. The Appellant requested that the decision under appeal be set aside and that the patent be granted on the basis of claims 1 to 8 of its sole request 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 is based on original claim 1, alternative (i), and page 1, last paragraph, line 5 together with page 3, lines 6 to 10 of the application as filed.

The Board thus concludes that amended claim 1 complies with the requirements of Article 123(2) EPC.

3. *Inventive Step*

For deciding whether or not a claimed invention meets this criterion, the Boards of Appeal consistently apply the problem and solution approach, which essentially involves identifying the closest prior art, determining in the light thereof the technical problem which the claimed invention addresses and successfully solves, and examining whether or not the claimed solution to this problem is obvious for the skilled person in view of the state of the art.

3.1 The Board considers, in agreement with the Examining Division and the Appellant, that the closest prior art is the disclosure of document (4).

Document (4) (cf. claim 1) discloses a collagen membrane for use in guided tissue regeneration comprising a purified collagen membrane derived from native collagen, wherein a first face of said membrane is fibrous thereby allowing cell growth thereon and an opposite face of said membrane is smooth, thereby inhibiting cell adhesion thereon, and acts as a barrier to prevent passage of cells therethrough.

3.2 In view of this state of the art, the problem underlying the present application as formulated by the Appellant at the oral proceedings consists in the provision of an alternative bone-healing material.

3.3 As the solution to this problem, the present application proposes a bone-healing material as defined in claim 1 characterised in that it carries bone-forming cells selected from osteocytes, osteoblasts, stromal stem cells and osteoblast-forming stem cells.

3.4 Finally, it remains to be decided whether or not the proposed solution to the problem underlying the present application is obvious in view of the cited prior art.

3.4.1 The skilled person looking for an alternative to the bone-healing material disclosed in document (4) would turn its attention to document (6) which addresses the problem underlying the present application of providing bone-healing material. Document (6) teaches a process for preparing a bone replacement material by culturing bone cells, more particularly osteoblasts, on collagen (cf. claims 1 and 2) to form a binding material ("Verbundmaterial") which may be reimplanted into the patient (cf. column 1, lines 7 to 8).

The Board concludes from the above that document (6) gives the person skilled in the art a concrete hint as to how to solve the problem underlying the application in suit as defined in point 3.2 above, namely by seeding the collagen membrane material known from the closest prior art document (4) with bone-forming cells, thereby arriving at the claimed bone-healing material, i.e. the solution proposed by the application in suit. In the Board's judgement, it was obvious to try to follow the avenue indicated in the state of the art with a reasonable expectation of success without involving any inventive ingenuity.

3.5 For the following reasons the Board cannot accept the Appellant's arguments designed for supporting inventive step.

3.5.1 The Appellant submitted that document (6) related to bone replacement rather than bone healing, and described an extracorporeal cell impregnation procedure which provided a finished product for implantation whereas the presently claimed membrane material was impregnated *in vivo*, such that the skilled person would not have combined its teaching with that of document (4).

However, the bone-replacement material of document (6) is clearly for use in healing bones (cf. column 1, lines 10 to 23 and 40 to 43). Furthermore, present claim 1 relates to a bone-healing material *per se*, and does not differentiate between whether the bone-forming cells have been impregnated *ex-* or *in vivo*. Indeed, in the specification of the present application

(cf. page 3, lines 42 to 46), it is indicated that the matrix is impregnated either prior to or following implantation. Hence this argument of the Appellant is devoid of merit.

- 3.5.2 The Appellant further argued that the skilled person would have been deterred from seeding the membrane of document (4) with bone-forming cells, since he would have believed there to be a significant risk that the growth promoting properties of the membrane would be compromised by the presence of cells thereon.

However, when assessing inventive step it is not necessary to establish that the success of an envisaged solution of a technical problem was predictable with certainty. In order to render a solution obvious it is sufficient to establish that the skilled person would have followed the teaching of the prior art with a reasonable expectation of success (see decisions T 249/88, point 8 of the reasons; T 1053/93, point 5.14 of the reasons; neither published in OJ EPO).

In the present case, the Board cannot agree with the Appellant's argument that due to some purported uncertainty about the predictability of success, the skilled person would not have contemplated incorporating bone-forming cells into the collagen membrane of document (4) in order to provide an alternative bone-healing material. The skilled person has a clear incentive from document (6) to do so (see point 3.4.1 *supra*). It was only necessary for him to confirm experimentally by routine work that incorporating bone-forming cells into the collagen membrane known from document (4) indeed results in an



alternative bone-healing material, thus arriving at the claimed invention without inventive ingenuity.

Nothing was submitted by the Appellant from which the Board could reasonably conclude that the skilled person has been deterred from following the straight teaching of the art. In the absence of substantiating facts and corroborating evidence, the Appellant's arguments do not convince the Board.

3.6 Therefore, in the Board's judgement, the subject-matter of claim 1 represents an obvious solution to the problem underlying the patent application. As a result, the Appellant's request is not allowable as the subject-matter of claim 1 lacks an inventive step pursuant to Article 56 EPC.

## **Order**

### **For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:

P. Cremona

R. Freimuth