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D E C I S I O N
of 18 January 2005

Case Number: T 0513/02 - 3.3.2

Application Number: 94909365.2

Publication Number: 0784487

IPC: A61K 47/38

Language of the proceedings: EN

Title of invention:

A composition and a method for tissue augmentation

Applicant:

Q MED AB

Opponent:

-

Headword:

Composition for tissue augmentation/Q MED AB

Relevant legal provisions:

EPC Art. 83, 123(2)

Keyword:

"Main request, first and second auxiliary requests:

Sufficiency of disclosure (no): The invention claimed is not disclosed in the application in a clear and complete manner"

"Third auxiliary request: Allowability of the amendments under Article 123(2) EPC (no): There is no basis in the application as filed for the amendments"

Decisions cited:

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Catchword:

-



Case Number: T 0513/02 - 3.3.2

D E C I S I O N
of the Technical Board of Appeal 3.3.2
of 18 January 2005

Appellant: Q MED AB
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 27 November 2001
refusing European application No. 94909365.2
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: U. Oswald
Members: M. Ortega Plaza
J. H. P. Willems

Summary of Facts and Submissions

I. The present appeal lies from the decision of the examining division posted 27 November 2001 refusing European patent application No. 94 909 365.2 (based on international patent application WO 94/21299) pursuant to Article 97(1) EPC on the grounds of lack of inventive step (Article 56 EPC).

The decision was based on the sets of claims filed with the letter of 8 May 2001 as main request and first auxiliary request.

Claim 1 of the main request read as follows:

"1. A biocompatible composition for tissue augmentation, comprising a polymer carrier in an amount of 0.05-50% (w/w) of the total composition; and dispersed in said carrier a water insoluble, biocompatible and biodegradable tissue augmenting substance, wherein said polymer carrier is a pseudoplastic gel and said tissue augmenting substance is dextranomer in the term of microbeads."

Claim 1 of the first auxiliary request read as follows:

"1. Use of a biocompatible composition in the manufacture of a material for augmentation of tissues, said composition comprising a polymer carrier in an amount of 0.05-50% (w/w) of the total composition; and dispersed in said carrier a water insoluble, biocompatible and biodegradable tissue augmenting substance, said polymer carrier being a pseudoplastic gel and said tissue augmenting substance being

dextranomer in the form of microbeads, to the surfaces of which collagen-producing cells are recruited."

II. The examining division considered that the amended sets of claims met the requirements of Article 123(2) EPC. The examining division acknowledged the novelty of the subject-matter claimed over the prior art.

In its decision to refuse the application the examining division considered that, as shown by the examples, the polymer carrier pseudoplastic gel of claim 1 did indeed comprise a polymer dissolved in a suitable solution (eg 1% solution of hyaluronan in example 6) in which the dextranomer (microbeads) was dispersed. The examining division further expressed the opinion that the dextranomer microbeads would undergo swelling in the presence of the solvent under formation of gel particles.

In the examining division's view, the difference vis-à-vis the compositions of the closest prior art merely lay in the nature of the polysaccharide, this being dextranomer microbeads.

The examining division considered that the closest prior art document suggested using a biocompatible viscoelastic slurry possessing very similar rheological properties to those of the claimed composition. Additionally, the examining division stated that a further two documents disclosed the use of surface-modified dextranomer beads for tissue augmentation. In the examining division's opinion, the skilled person would have arrived at the claimed invention by an

obvious combination of the teaching of the prior art documents.

With respect to the first auxiliary request the examining division defined the problem to be solved as providing a biocompatible composition for use in tissue augmentation whose tissue augmentation substance is able to recruit collagen-producing cells to its surface.

The use of dextranomer containing biocompatible compositions lacked an inventive step in the light of the contents of the closest prior art document in combination with two further documents.

- III. The appellant (applicant) lodged an appeal against the said decision and filed two sets of claims (main request and auxiliary request) corresponding to those claims which served as a basis for the examining division's decision to refuse the application. The newly filed sets of claims merely differed from the sets of claims which served as basis for the examining division's decision in that clerical errors (such as the replacement of the word "term" in claim 1 of the main request by the word "form") were corrected.
- IV. A communication was sent on 24 March 2004 informing the appellant that the requirements of Articles 123(2) and 84 EPC (clarity and support by the description) were not met by the sets of claims on file.
- V. The appellant filed two sets of claims (main request and auxiliary request) with its letter of 24 May 2004, in response to the above-mentioned communication.

Claim 1 of the main request read as follows:

"1. A biocompatible composition for tissue augmentation, comprising a polymer carrier in an amount of 0.05-50% (w/w) of the total composition; and dispersed in said carrier a water insoluble, biocompatible and biodegradable tissue augmenting substance, wherein said polymer carrier is a pseudoplastic gel and said tissue augmenting substance is dextranomer in the form of microparticles."

Claim 1 of the auxiliary request was identical to claim 1 of the auxiliary request filed with the grounds of appeal except for the replacement of the words "microbeads, to the surfaces of which collagen-producing cells are recruited" by the word "microparticles".

VI. During the oral proceedings held on 18 January 2005 the appellant withdrew the auxiliary request filed with its letter of 24 May 2004 and filed three auxiliary requests.

Claim 1 of both the first and second auxiliary requests was identical to claim 1 of the main request.

Claim 1 of the third auxiliary request read as follows:

"1. A biocompatible composition for tissue augmentation, consisting of a pseudoplastic carrier gel, comprising a polymer in an amount of 0.05-50% (w/w) of the total composition in physiological saline; and dispersed in said carrier a water insoluble, biocompatible and biodegradable tissue augmenting substance, wherein said

tissue augmenting substance is dextranomer in the form of microparticles."

- VII. At the beginning of the oral proceedings the Chairman referred to Article 84 EPC and asked the appellant to explain for which subject-matter protection was sought in the light of the wording of the claims. Furthermore, the appellant was also requested to show the support in the description for the subject-matter claimed.

The appellant's arguments may be summarised as follows: Claim 1 of the main request (identical to claim 1 of the first and second auxiliary requests) related to a biocompatible composition suitable for tissue augmentation which was in essence a two-component composition: a polymer gel with pseudoplastic properties which was a carrier and dispersed therein a tissue augmenting substance which was dextranomer. There were no distinct boundaries between gel and solution. In the field of tissue augmentation, polymers were used in different concentrations which could achieve different rheological properties. A gel is a composition where a polymer creates a network containing pores or cavities in which a solvent can be placed. Whether the solvent can be encapsulated by the polymer depends on several factors. Whether or not the polymer and solvent form a gel or a solution depends inter alia on the length of the polymer, its molecular weight and its degree of crosslinking. If one has a gel, it is not a slurry: it is a semi-solid slab of material.

The Board asked what the situation was when the polymer carrier was present in an amount of 0.05% w/w of the total composition and 99.5% w/w of the total

composition was something else. The Board also asked whether support could be found in the examples for that particular situation.

To these questions the appellant answered that depending on the selection of polymer, eg if it had a high molecular weight and it was extremely branched, then one had a pseudoplastic gel for that extreme situation and that in some of the examples the concentration was below the 1% range but none of them illustrated the 0.05% situation.

Moreover, the appellant acknowledged that the examples did not explicitly mention the term "gel". It also stated that the word "slurry" employed, for instance, in example 1 was an unfortunate choice of wording. However, the appellant pointed to the sentence "The pseudoplastic carrier had been reabsorbed" at the end of example 1 which, in its opinion, would have been read by the skilled person as meaning the pseudoplastic gel carrier. Additionally, the appellant stated that the resulting slurry referred to the whole composition and not to the pseudoplastic gel carrier. The dextranomer particles were dispersed in the polymer carrier and they were swollen particles.

The appellant also stated that example 8 did not illustrate the claimed invention since it did not have a gel component. With respect to example 11, the appellant contended that the Sephadex^R beads coated with kitosan released the kitosan when put in the heparin solution. The kitosan would then form a pseudoplastic gel in which the swollen dextranomer particles would be dispersed.

Asked by the Board whether it was correct to understand that the biocompatible composition claimed was not necessarily a continuous polymer gel, the appellant answered that this interpretation was correct. The appellant further stated that the composition contained a carrier which was in the form of a gel, however the composition was not necessarily a continuous gel. The appellant also said that the pseudoplastic gel carried the dextranomer particles.

With respect to the disclosure on page 4 of the description, first paragraph, under the heading "DETAILED DESCRIPTION OF THE INVENTION", the appellant stated that the skilled person would read that the polymer was dissolved in the suitable solution, such as physiological saline, and that the polymer would form the matrix from the solution in which it was put. The gel was formed by taking the polymer and putting it in the physiological saline.

The Board reminded the appellant that the requirements of Article 83 EPC also had to be met. The Board asked the appellant how it was possible to measure the presence of a gel from the end composition claimed.

The appellant's answer to this question was that the skilled person would have been aware at the priority date of methods for measuring it. The composition would have a certain pseudoplasticity. Moreover, it was simple to separate the components from the system. After separation of the swollen particles of dextranomer from the pseudoplastic polymer it was possible to measure the pseudoplastic properties of the

polymer. The skilled person would measure the rheological properties of the composition and the separate components with a rheometer. He would also measure the viscosities with a viscosimeter. The pseudoplastic gel would show shear thinning properties in a rheometer.

Asked by the Board whether there was evidence of the gel in the final compositions or what properties should be measured in the final compositions to distinguish them from other compositions without the gel, the appellant answered that the polymer gel had to be separated from the dextranomer. The polymer gel was separable from the final composition as well.

With respect to claim 1 of the third auxiliary request, the appellant stated that the composition consisting of a pseudoplastic carrier gel in which the augmenting substance was dispersed was disclosed in the first and third paragraphs under the heading "DETAILED DESCRIPTION OF THE INVENTION".

VIII. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request, filed with letter dated 24 May 2004 or, alternatively, on the basis of one of the auxiliary requests 1-3, filed during today's oral proceedings.

Reasons for the decision

1. The appeal is admissible.
2. The amended sets of claims filed during the oral proceedings are admissible since the amendments introduced relate to a direct response to the discussion during the oral proceedings.
3. *Main request, first and second auxiliary requests*

Claim 1 of the main request and that of the first and second auxiliary requests respectively are identical.

It appears to be adequate under the circumstances of the present case to analyse first the invention as claimed in claim 1.

Claim 1 of the main request relates to a biocompatible composition comprising a polymer carrier in an amount of 0.05-50 % (w/w) of the total composition. Where the polymer carrier is present in an amount of 0.05% (w/w) of the total composition, the composition comprises up to 99.95% (w/w) of other components. In the claim, one of the further components is expressly defined as a biocompatible and biodegradable tissue augmenting substance (the said substance is dextranomer) dispersed in said carrier. The claim further specifies that the polymer carrier is a pseudoplastic gel. Additionally, the condition that there is a gel implicitly includes the presence of some solvent. Accordingly, it is a requirement of claim 1 that a pseudoplastic gel is present in the composition, in an amount of 0.05-50 % (w/w) of the total composition. Indeed, the composition

is characterised by the technical feature concerning the presence of a pseudoplastic gel in which the dextranomer is dispersed.

The Board agrees in principle with the definition of gel given by the appellant. Gels are elastic, coherent structures which are usually formed by a polymer network containing solvent in its cavities.

However, the final composition is not necessarily a continuous polymer gel. This point was confirmed by the appellant.

As laid down in Article 83 EPC, the patent application must disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

In the present case, the description, including the examples, must enable the skilled person in the art to obtain the product claimed. In order to establish whether the product claimed has been obtained it has to be identified according to the features which characterise it in the claim.

Therefore, the question immediately arises as to how it can be established whether the polymer carrier is in the form of a pseudoplastic gel in the final composition, which may itself be in the form of a slurry or a suspension.

The description does not contain any reference to a measurement method or to a method by which it can be established that the composition as claimed contains some gel phase.

An inspection of the description shows the following passages (cf. first and third paragraphs on page 4 under the heading "DETAILED DESCRIPTION OF THE INVENTION") as those relevant for the existence of a gel (these passages were also cited by the appellant):

"The biocompatible gel of the composition according to the invention comprises a polymer dissolved in a suitable solution, such as physiological saline, as a matrix. ... Preferably, the matrix comprises 0.05-50% (w/w) of the composition. This carrier gel according to the invention has pseudoplastic properties, ie it has shear thinning properties."

"The pseudoplastic properties of the carrier gel enable effective dispersion of the tissue augmenting substance therein."

The first sentence of the first paragraph states on the one hand that the biocompatible carrier gel of the composition comprises a polymer as a matrix and on the other that the polymer is dissolved in a suitable solution, such as physiological saline. This sentence leaves some doubt about the form which takes the polymer carrier in the final composition, either a gel or dissolved.

In the first paragraph it is further stated that the **matrix** comprises 0.05-50% (w/w) of the composition.

Therefore, this passage merely confirms the analysis of the claim that in the case of 0.05% of polymer matrix the composition would not form a continuous gel phase.

The second paragraph again states that the carrier of the dextranomer is a gel with pseudoplastic properties. This passage, however, does not contain any information about the form of the final composition.

A further inspection of the examples shows that nowhere do they mention a gel. Some of the examples state the form of the final composition: example 1 discloses that the "resulting **slurry**" was injected. Example 6 discloses the mixing of Sephadex^R microbeads with 20 ml of a 1% **solution** of hyaluronan. Example 7 discloses that "the resulting **slurry** was injected". Example 10 discloses a "**suspension**" which was injected. From the examples it can only be confirmed that the final composition is not necessarily a continuous gel.

Consequently, there is insufficient disclosure in the application as to how to identify whether or not the polymer carrier is in the form of a gel in the final composition.

The appellant has argued that the skilled person would be able to identify the presence of a gel in the final composition by separating the polymer carrier from the other components, in particular from the dextranomer, and then observing its rheological behaviour. However, even if it were to be decided in favour of the appellant that the separation methods do not require anything other than the general knowledge and routine experimentation, there is nothing to indicate that the

separated components would have the same properties as they had in the final composition. On the contrary, it is plausible that the separation method would interfere with the physical state of the components.

Further to the appellant's arguments concerning a possible measurement in the final composition it has to be said that the measurement of the viscosity in the total composition is independent of the characteristics of the individual components it contains. Additionally, the pseudoplastic behaviour is a characteristic of certain non-Newtonian fluids but it does not require a gel phase. Therefore, a possible pseudoplastic behaviour of the compositions does not demonstrate the presence of a gel in it.

Accordingly, there is no proof that the skilled person could supply the missing information from his general knowledge, in order to be able to detect the gel which is suspended or may even be dissolved in the final composition.

Therefore the technical feature required by claim 1 concerning the existence of a pseudoplastic gel in an amount of 0.05-50% (w/w) of the total the composition cannot be reproduced by the skilled person in a clear and complete manner when considering the contents of the application, even in the light of common general knowledge.

In view of the above, the Board concludes that the main request and the first and second auxiliary requests do not meet the requirements of Article 83 EPC.

4. *Third auxiliary request*

Claim 1 of the third auxiliary request has been amended in such a way that it relates to "a biocompatible composition for tissue augmentation, **consisting of a pseudoplastic gel**, comprising a polymer in an amount of 0.05-50% (w/w) of the total composition in physiological saline;..."

The appellant cited the passages of the description reproduced in point 3 above (ie the passages from the first and third paragraphs on page 4 under the heading "DETAILED DESCRIPTION OF THE INVENTION") as a basis for the amendment referred to in the above paragraph. However, none of the passages on page 4 of the description relating to a gel supports the feature that the final composition consists of a (pseudoplastic) gel. The passages on page 4 of the description merely state that there is a carrier gel with pseudoplastic properties in which the tissue augmenting substance is dispersed. However, the constitution of the final (total) composition and its physical form is not mentioned in the disclosure on page 4.

On page 3 there is an additional paragraph referring to a gel: "It is an object of the present invention, therefore, to provide novel compositions for tissue augmentation **comprising** a carrier gel having pseudoplastic (shear thinning) properties and one or more biocompatible, tissue augmenting substance(s)." (emphasis added)

However, the use of the term "comprising" leaves open the form of the composition, since the carrier gel is one component among others.

Consequently, the Board concludes in the light of the above reasons that the amendments introduced in claim 1 of the third auxiliary request contravene the requirements of Article 123(2) EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

A. Townend

U. Oswald