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**Datasheet for the decision
of 13 July 2016**

Case Number: T 1833/13 - 3.3.05

Application Number: 04253742.3

Publication Number: 1491552

IPC: C07K1/04, B01J19/12, H05B6/80

Language of the proceedings: EN

Title of invention:
Method and apparatus for the microwave-assisted peptide synthesis

Patent Proprietor:
CEM Corporation

Opponent:
Biotage AB

Headword:
Microwave-assistend peptide synthesis/CEM

Relevant legal provisions:
EPC Art. 123(2), 123(3)

Keyword:
Main request - amendments - allowable (no)
Auxiliary request - amendments - extention of protection (yes)

Decisions cited:

G 0001/93

Catchword:



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Case Number: T 1833/13 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 13 July 2016

Appellant 1: CEM Corporation
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Decision under appeal: **Interlocutory decision of the Opposition**
Division of the European Patent Office posted on
26 June 2013 concerning maintenance of the
European Patent No. 1491552 in amended form.

Composition of the Board:

Chairman H. Engl
Members: A. Haderlein
C. Vallet

Summary of Facts and Submissions

- I. The appeals of the patent proprietor (appellant 1) and of the opponent (appellant 2) lie from the opposition division's interlocutory decision holding that European patent No. 1 491 552 in amended form and the invention to which it relates meet the requirements of the EPC.
- II. In its decision, the opposition division was of the opinion that the auxiliary request submitted at the oral proceedings of 23 April 2013 complied with the requirements of the EPC, in particular with the requirements set forth in Article 123(2) EPC.
- III. In its statement of grounds of appeal, appellant 1 requested that the patent be maintained as granted.
- IV. In its statement of grounds of appeal, appellant 2 requested that the impugned decision be set aside and that the patent be revoked.
- V. The board issued a communication setting out its preliminary opinion. In particular, it raised doubts as to whether the feature "while preventing the solid phase resin from leaving the vessel" was directly and unambiguously disclosed in the application documents as originally filed. It also informed the parties that it understood the submissions of appellant 1 to mean that, on an auxiliary basis, appellant 1 requested the rejection of appellant 2's appeal.
- VI. In response to the board's communication, appellant 1 filed a second auxiliary request.

- VII. With letter dated 7 July 2016, appellant 1 filed a modified second auxiliary request.
- VIII. At the oral proceedings before the board, appellant 1 withdrew its main request. It declared that its main request was the maintenance of the patent on the basis of the set of claims dated 23 April 2013, i.e. the rejection of appellant 2's appeal, the second auxiliary request dated 7 July 2016 becoming its sole auxiliary request.
- IX. Claim 1 of the main request (dated 23 April 2013) reads as follows:

"1. A process for accelerating the solid phase synthesis of peptides, and comprising:
deprotecting the alpha-amino group of a first amino acid (10) protected with a composition selected from Na-9-fluorenylmethyloxycarbonyl (Fmoc) and Na-t-butoxycarbonyl (Boc) and linked to a solid phase resin (14) by admixing the protected linked acid (10) with a deprotecting solution in a microwave transparent vessel (45) while irradiating the admixed acid and solution with microwaves;
activating a second amino acid (20) by adding the second acid and an activating solution (22) to the same vessel (45) while irradiating the vessel with microwaves;
coupling the second amino acid (20) to the first acid (10) while irradiating the composition in the same vessel (45) with microwaves; and
carrying out a plurality of cycles of successive microwave-assisted deprotecting, activating, and coupling steps to add a plurality of amino acids into a peptide in the same microwave transparent vessel (45) while preventing the solid phase resin (14) from

leaving the vessel (45) between the successive deprotecting, activating and coupling steps."

- X. Claim 1 of the auxiliary request (dated 7 July 2016) reads as follows (amendments with respect to claim 1 of the main request underlined or struck through):

"1. A process for accelerating the solid phase synthesis of peptides, and comprising:
deprotecting the alpha-amino group of a first amino acid (10) protected with a composition selected from Na-9-fluorenylmethyloxycarbonyl (Fmoc) and Na-t-butoxycarbonyl (Boc) and linked to a solid phase resin (14) by admixing the protected linked acid (10) with a deprotecting solution in a microwave transparent vessel (45), using a passageway for adding liquids thereto and a passageway for removing liquids but not solids therefrom, while irradiating the admixed acid and solution with microwaves;
activating a second amino acid (20) by adding the second acid and an activating solution (22) to the same vessel (45) while irradiating the vessel with microwaves;
coupling the second amino acid (20) to the first acid (10) while irradiating the composition in the same vessel (45) with microwaves; and
carrying out a plurality of cycles of successive microwave-assisted deprotecting, activating, and coupling steps to add a plurality of amino acids into a peptide in the same microwave transparent vessel (45) ~~while preventing~~ without removing the peptide from the solid phase resin (14) or ~~leaving~~ the vessel (45) between the successive deprotecting, activating and coupling steps."

XI. The arguments of appellant 1 may be summarised as follows:

Main request

The feature "preventing the solid phase resin from leaving the vessel between the successive deprotecting, activating and coupling steps" was supported in particular by Figures 3 and 6 and the corresponding passages of the description, i.e. paragraphs [0032] and [0042] of the published patent application, corresponding to page 9, lines 15 to 18, and page 11, lines 28 to 30, of the originally filed documents. Further support could be found on page 16, lines 11 to 15. Throughout the description, the resin was described as being retained in the same vessel throughout all essential process steps of the claimed process. Additional support could be found in originally filed claim 4 disclosing that the peptide was not removed between cycles. Admittedly, compared to a situation where the resin was not removed from the vessel, preventing the resin from leaving the vessel entailed measures that kept the resin from leaving the vessel whereas without those measures the resin might leave the vessel.

Auxiliary request

The deletion of the passage "while preventing" did not infringe Article 123(3) EPC because of the introduced feature "a passageway for removing liquids but not solids therefrom". The latter feature was encompassed by the former; so Article 123(3) EPC was not violated. The passage "without removing the peptide from the solid phase resin or from the vessel" was to be construed as meaning that the peptide was removed

neither from the solid phase nor from the vessel. The amendments carried out in the auxiliary request thus complied with the criteria set out in G 1/93. The amendments did not contravene Article 123(3) EPC because a general feature had been replaced by a more specific one encompassed by the more general feature.

XII. The arguments of appellant 2 may be summarised as follows:

Main request

The feature "preventing the solid phase resin from leaving the vessel between the successive deprotecting, activating and coupling steps" was not disclosed in the originally filed documents. The passages on page 9, lines 15 to 17, page 11, lines 28 to 30, and page 16, lines 11 to 15, of the originally filed documents did not support the feature in question because they only stated that the second passageway had a filter for preventing the resin from entering the second passageway. The apparatus as described in the documents as originally filed clearly provided means for actively and deliberately removing the solid phase resin from the reaction vessel. It was clear from the description that the filter was provided to prevent the solid phase resin from leaving through the wrong passageway and not to prevent the solid phase resin from leaving the vessel at all. Hence the requirements of Article 123(2) EPC were not met.

Auxiliary request

The amendments carried out in this request infringed Article 123(3) EPC because claim 1 did not necessarily require that the solid resin was prevented from leaving

the vessel between the successive deprotecting, activating and coupling steps.

XIII. Requests

Appellant 1 requested that the patent be maintained based on the set of claims dated 23 April 2013, i.e. that the appeal of appellant 2 be rejected, or alternatively that the patent be maintained on the basis of the set of claims submitted with letter of 7 July 2016.

Appellant 2 requested that the impugned decision be set aside and that the patent be revoked.

Reasons for the Decision

1. Main request
- 1.1 At issue is the question whether the feature "while preventing the solid phase resin from leaving the vessel between the successive deprotecting, activating and coupling steps" is directly and unambiguously derivable from the application documents as filed.
- 1.2 It is established case law that amendments are permitted within the limits of what the skilled person would derive directly and unambiguously, using common general knowledge, from the application as filed (see Case Law of the Boards of Appeal, 7th ed., II.E.1., third paragraph).
- 1.3 In this respect, the board concurs with appellant 1 only in so far as, compared to a situation where the resin is not removed from the vessel, preventing the resin from leaving the vessel entails measures that

keep the resin from leaving the vessel, whereas without these measures the resin might leave the vessel.

The application documents as filed disclose at several instances in general terms that the successive steps of deprotecting, activating and coupling are carried out in the same vessel (see for instance claim 1 and page 6, lines 7 to 14). This general disclosure however fails to provide a basis for the contentious feature because it is silent about any measures that would be needed to keep the resin from leaving the vessel whereas without those measures the resin might leave the vessel.

- 1.4 The only specific disclosure referring to actually "preventing" the solid-phase resin from leaving the vessel can be found only in relation to the specific reaction vessel and vessel system shown in Figures 3 and 6 (see page 9, lines 15 to 17, and page 11, lines 28 to 30), disclosing a passageway 47 in fluid communication between an amino acid source and the vessel 45 (see also page 9, lines 5 to 10) comprising a filter 51 for preventing solid-phase resin from entering said passageway 47.

Even if these passages were to be accepted as disclosing that between the successive deprotecting, activating and coupling steps the solid-phase resin is prevented from leaving the vessel by means of the filter 51, the application documents as filed are silent about any means other than a filter that would lead to preventing the solid-phase resin from entering the second passageway 47. In particular, the passage on page 16, lines 11 to 15, referred to by appellant 1 also teaches to use a filter to prevent the passage of the resin in the second passageway. Even by drawing on

common general knowledge the skilled person could not derive directly and unambiguously other conceivable means for preventing the solid-phase resin from leaving the vessel via the second passageway 47.

1.5 Hence, the skilled person cannot derive directly and unambiguously, using common general knowledge, from the application as filed the general feature of "preventing the solid phase resin from leaving the vessel between the successive deprotecting, activating and coupling steps".

1.6 The board thus concludes that the requirements of Article 123(2) EPC are not met for the main request.

2. Auxiliary request

2.1 According to appellant 2, this request contravened Article 123(3) EPC because the feature "while preventing" was deleted.

2.2 According to G 1/93, a limiting feature violating Article 123(2) EPC cannot be maintained in the patent in view of Article 100(c) EPC, nor can it be removed from the claims without violating Article 123(3) EPC. Only if the added feature can be replaced by another feature disclosed in the application as filed without violating Article 123(3) EPC can the patent be maintained in amended form (see reasons 13).

2.3 In the present case the contentious feature "while preventing the solid-phase resin from leaving the vessel" entails more than carrying out the successive steps in the same vessel without removing the resin from the vessel, i.e. it entails measures that keep the resin from leaving the vessel whereas without those

measures the resin might leave the vessel (see 1.3 *supra*) and is thus a limiting feature, i.e. its absence would result in a claim of broader scope, also covering methods wherein no such measures were taken.

2.4 The board observes that in claim 1 the passage "while preventing the solid phase resin from leaving the vessel" has been replaced by "without removing the peptide from the solid phase resin or from the vessel". Moreover, the feature "using a passageway for adding liquids thereto and a passageway for removing liquids but not solids therefrom" has been added in the passage of claim 1 dealing with the deprotecting step.

2.5 Thus, the board needs to establish whether the features added to claim 1 at least implicitly contain the limiting feature (see 2.3 *supra*) deleted from that claim, i.e. the added features constitute more specific features which would be encompassed by the deleted feature.

The board is of the opinion that this is not the case for the following reasons.

2.5.1 First, claim 1 now states that the successive steps are carried out "without removing the peptide from the solid phase resin or from the vessel". As mentioned above, and in agreement with appellant 1, this feature does not entail measures that keep the resin from leaving the vessel whereas without those measures the resin might leave the vessel. Moreover, due to the "or" formulation this feature also covers methods wherein the peptide is not removed from the solid-phase resin but is indeed removed from the vessel, i.e. methods wherein the solid-phase resin is not prevented from leaving the vessel. The clear wording of this feature

does not support appellant 1's contention that it required that neither removal of the peptide from the solid-phase resin nor removal of the peptide (linked to the solid-phase resin) from the vessel occurred.

2.5.2 Second, the feature "using a passageway for adding liquids thereto and a passageway for removing liquids but not solid therefrom" likewise does not require that the solid-phase resin is prevented from leaving the vessel. Rather, it only requires the use of a passageway that is suitable for removing liquids but not solids from the vessel. Further, this feature is present only in the deprotecting step, and no mention of such a passageway is made in the other steps of activating and coupling. In contrast, claim 1 as granted requires that the solid-phase resin is prevented from leaving the vessel between the three steps.

2.5.3 For these reasons, the features added to claim 1 neither explicitly nor implicitly require the limitation of the feature that has been deleted, i.e. the added features do not constitute specific features which would be encompassed by the more general feature which has been deleted.

2.6 The board thus concludes that the amendments according to the auxiliary request lead to an extension of the scope of protection and, therefore, the auxiliary request does not meet the requirements of Article 123(3) EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



C. Vodz

H. Engl

Decision electronically authenticated