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**Datasheet for the decision
of 4 November 2009**

Case Number: T 0090/07 - 3.3.06

Application Number: 99906913.1

Publication Number: 1054726

IPC: B01J 19/00

Language of the proceedings: EN

Title of invention:

Apparatus for chemical and biochemical reactions using photo-generated reagents

Patentees:

University of Houston, Office of Technology Transfer
The University of Michigan

Opponents:

febit AG
Nimblegen Systems, Inc.

Headword:

Synthesis of arrays/HOUSTON UNIV.

Relevant legal provisions:

EPC Art. 54, 123(2)
RPBA Art. 13(1)(3)

Relevant legal provisions (EPC 1973):

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Keyword:

"Admissibility of the appeal by the insolvent opponent (yes)"
"Introduction of late-filed documents (no)"
"Novelty - 'main request' (no)"
"Amendments originally disclosed - 'auxiliary requests I - V'
(no)"

Decisions cited:

J 0025/86

Catchword:

-



Case Number: T 0090/07 - 3.3.06

D E C I S I O N
of the Technical Board of Appeal 3.3.06
of 4 November 2009

Appellant: febit AG
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
10 November 2006 concerning maintenance of
European Patent No. 1054726 in amended form.

Composition of the Board:

Chairman: L. Li Voti
Members: E. Bendl
U. Tronser

Summary of Facts and Submissions

- I. The appeals are against the interlocutory decision of the Opposition Division to maintain the European patent 1 054 726 in amended form.
- II. In opposition proceedings the Opponents I and II raised objections with regard to the requirements of Article 100(a) EPC (lack of novelty and inventive step), 100(b) and (c) EPC. Inter alia document

D1 = US-A-5 653 939

was cited.

The Opposition Division concluded inter alia that Claim 1 according to the then pending main request satisfied the requirements of Articles 123(2) and 83 EPC, but not of Article 54 EPC, given the disclosure of D1. However, the claims according to the first auxiliary request were considered to meet all the requirements of the EPC.

- III. Opponent I filed an appeal against the decision on 15 January 2007, the appeal fee was received on the same day. The grounds of appeal were received on 12 March 2007. During appeal procedure he argued, that the requirements of Articles 123(2), 83, 84, 54 and 56 EPC were not met and submitted inter alia with letter of 02 October 2009 additional documents which were allegedly relevant for novelty.
- IV. The Patent Proprietors filed an appeal against the decision of the Opposition Division on 19 January 2007,

the appeal fee was received on the same day. The grounds of appeal were received on 20 March 2007. They countered all objections made by Opponent I and furthermore stated that the Opponent I's appeal would not be admissible (main request).

V. Oral proceedings before the Board took place on 04 November 2009. Though duly summoned, Opponent II did not participate, as announced in his letter dated 26 October 2009.

VI. In addition to the main request, the Patent Proprietors also request the following sets of claims:

Claim 1 of the set of claims submitted with the grounds of appeal (labelled as "main request") reads as follows:

"A device for performing synthesis of arrays of oligonucleotides, peptides, oligosaccharides and/or phospholipids comprising:

(a) a reactor comprising a solid surface (810a) containing a plurality of reaction sites;

(b) an optical system operably linked to the reactor,

characterized in that the reaction sites are isolated reaction sites, and

in that the optical system comprises a computer-controlled spatial optical modulator, comprising a digital micromirror device (801) comprising a plurality of individual rocking mirrors (801a), to form an irradiation pattern,

which optical system selectively irradiates said plurality of isolated reaction sites."

Claim 1 of the set of claims submitted with the request to dismiss the appeal of Opponent I (labelled as "first auxiliary request") is identical to Claim 1 of the set of claims labelled as "main request", except that the passage starting from "characterized in that" was replaced by the text:

"wherein the reaction sites are isolated reaction sites, and

wherein the optical system comprises a computer-controlled spatial optical modulator, comprising a digital micromirror device (801) comprising a plurality of individual rocking mirrors (801a), to form an irradiation pattern, which optical system selectively irradiates said plurality of isolated reaction sites, characterized in that an isolation means prevents diffusion of reagents between adjacent reaction sites and spatially isolates individual reaction sites."

Claim 1 of the set of claims labelled as "second auxiliary request" differs from Claim 1 of the set of claims labelled as "first auxiliary request" by the insertion of the passage "solution based photochemical" between "performing" and "synthesis" in the first line.

Claim 1 of the set of claims submitted with the letter dated 01 October 2007 (labelled as "third auxiliary request") is identical to Claim 1 of the set of claims labelled as "first auxiliary request", except that the

passage starting from "characterized in that" reads as follows: "characterized in that an isolation means selected from the group consisting of microwell structures on a back cover (903), microwell structures on a substrate (913), and a pattern of non-wetting film on a substrate (933) prevents diffusion of reagents between adjacent reaction sites and spatially isolates individual reaction sites."

Claim 1 of the set of claims labelled as "fourth auxiliary request" is identical to Claim 1 of the set of claims labelled as "third auxiliary request", except that the part starting with "characterized in that" reads as follows: "characterized in that an isolation means selected from the group consisting of reactionwell structures (903) on a cap (902) and a seal mechanism to push the cap (902) against the substrate (901); reactionwell structures on a substrate (913), a cap (912) having a flat inner surface and a seal mechanism to push the cap (912) against the substrate (913); and a pattern of non-wetting film on a substrate (933) prevents diffusion of reagents between adjacent reaction sites and spatially isolates individual reaction sites."

Claim 1 of the set of claims labelled as "fifth auxiliary request" is identical to Claim 1 of the set of claims labelled as "fourth auxiliary request", except that the two passages "against the substrate" were replaced by "against the transparent substrate", the two references (913) were replaced by (911) and the text "a pattern of non-wetting film on a substrate (933)" was replaced by "a pattern of non-wetting film on a transparent substrate (933)".

VII. **Opponent I** argued inter alia that:

Admissibility of Opponent I's appeal

- the opposition had been filed in the name of febit AG prior to the start of the insolvency proceedings;
- the authorisation of the Representative had been signed by the insolvency administrator;
- the insolvency proceedings had not yet terminated;
- throughout the procedure there were no doubts as to the identity of Opponent I;
- the appeal thus would be admissible;

Introduction of the documents filed with letter of 02 October 2009 into the proceedings

- the late filed documents should be introduced into the proceedings due to their prima facie relevance;

Set of claims submitted with the grounds of appeal (labelled as "main request") - Novelty

- novelty of Claim 1 would be taken away by D1, which related to a device for synthesizing oligonucleotides; particular reference was made to the embodiment in col. 13, lines 28-40, referring to Fig. 17;
- the terms "digital micromirror array" and "switchable mirror array" were synonyms;

Set of claims submitted with the request to dismiss the appeal of Opponent I (labelled as "first auxiliary request") - Article 123(2) EPC

- only three specific embodiments of "isolation means", which prevented diffusion of reagents between adjacent sites, namely the ones of Figures 9A-9C, were described in the patent-in-suit, but no such means **in general**;

Set of claims labelled as "second auxiliary request" - Article 123(2) EPC

- the requirements of Article 123(2) EPC would still not be met as the objections remained the same as for the first auxiliary request and also the additionally inserted text would go beyond the original disclosure;

Set of claims submitted with the letter dated 01 October 2007 (labelled as "third auxiliary request") - Article 123(2) EPC

- the definitions in Claim 1 were more general than the teaching of Figures 9A-9C and no support in the application as originally filed could be found for such a general definition; for instance, the relation between the reactor and the microwells would not be derivable from the application as filed and the closing mechanism would not be described.

VIII. The **Patent Proprietors** argued inter alia that:

Admissibility of OP I's appeal

- the start of the insolvency proceedings terminated the existence of febit AG;

- the insolvency administrator should have filed the appeal under his own name, because the appeal would be

an independent procedure and no other than the insolvency administrator could have had an interest in filing an appeal;

Introduction of the documents filed with letter of 02 October 2009 into the proceedings

- the late introduction of the documents filed with 02 October 2009 would not be admissible since inter alia no reasons had been given for the late filing;

Set of claims submitted with the grounds of appeal (labelled as "main request") - Novelty

- D1 could not be novelty-destroying, because it described a large number of embodiments and different techniques;

- the embodiment represented by Fig. 17 of D1 did not disclose isolated reaction sites;

- the optical system would not be directly and unambiguously disclosed;

Set of claims submitted with the request to dismiss the appeal of Opponent I (labelled as "first auxiliary request") - Article 123(2) EPC

- isolation means as "confined areas" could be derived from the following passages: page 5 of the application as originally filed (corresponding to paragraphs 14 and 15 of the patent as granted), page 19, lines 21-24 and page 21, lines 3-4 and 9-10 as initially filed (corresponding to the sentence bridging lines 3-5, 30-31 and 35-36 on page 13 of the patent as granted);

- in combination with the disclosure of the "Reactor Configuration" on pages 34 to 37 as originally filed (corresponding to paragraphs 60 to 64 of the patent as granted) the skilled person would understand that the "confined areas" represented isolation means preventing diffusion of reagents;

Set of claims labelled as "second auxiliary request" - Article 123(2) EPC

- the feature "solution based photochemical" could be found on page 12, line 7 of the application as originally filed;

Set of claims submitted with the letter dated 01 October 2007 (labelled as "third auxiliary request") and sets of claims labelled as "fourth" and "fifth" auxiliary request - Article 123(2) EPC

- details of figures 9A-9C had been incorporated into Claim 1 in the light of the objections by Opponent I and of the observations by the Board raised during oral proceedings; in particular, incorporation of all details of these figures was not considered necessary by the Patent Proprietors.

- IX. Opponent II did not submit any arguments in writing.
- X. The Appellant (Opponent I) requested that the decision under appeal be set aside and that the European patent be revoked.

The Appellants (Patent Proprietors) requested that the appeal be rejected as inadmissible (main request) or that the decision under appeal be set aside and the patent be maintained on the basis of the claims

submitted with the grounds of appeal (labelled as "main request") or the appeal of the Opponent I be dismissed (claims labelled as "first auxiliary request") or the patent be maintained on the basis of the claims submitted with the letter dated 01 October 2007 (labelled as "third auxiliary request") or the claims of one of the auxiliary requests labelled as auxiliary requests 2, 4 or 5 submitted during the oral proceedings.

Reasons for the Decision

1. *Admissibility of Opponent I's appeal*
 - 1.1 On 30 April 2004 the European patent attorneys Weickmann & Weickmann filed an opposition against the patent-in-suit on behalf of febit AG. In the letter of opposition it was announced that the Power of Attorney would follow.
 - 1.2 On 01 July 2004 insolvency proceedings of febit AG were opened, attorney at law Mr. Seagon became insolvency administrator.
 - 1.3 The Power of Attorney including appeal proceedings before the EPO dated 21 December 2004, was signed by Mr. Seagon and carried the stamp "Christopher Seagon Rechtsanwalt als Insolvenzverwalter" (Christopher Seagon Attorney at law [acting] as insolvency administrator).
 - 1.4 On 02 August 2006 a request was made to transfer the status as an opponent from febit AG to febit biotech GmbH. Since EPO did not consider this request to be

sufficiently substantiated, the request was withdrawn by Opponent I's representative during oral proceedings before the Opposition Division.

- 1.5 In its decision the Opposition Division stated: "Given the request for transfer of the opponent status was withdrawn, there is no doubt as to the identity of the parties in the proceedings and the opposition division is in a position to take a decision."
- 1.6 On 15 January 2007 an appeal was filed against the decision of the Opposition Division "in the name and on behalf of febit AG".
- 1.7 The Board agrees with the Patent Proprietors that, according to German law, a company terminates to exist as soon as insolvency proceedings have started (§262(1) lit.3 Aktiengesetz). In these cases the insolvency administrator would have to act under his own name and not in the name of the insolvency debtor.
- 1.8 However, on the basis of the documents on file there is no doubt that Mr. Seagon acted as insolvency administrator to represent the interests of the insolvent febit AG (see J 0025/86 OJ EPO 1987, 475). Therefore, neither in opposition nor in appeal proceedings there was any doubt as to the identity of Opponent I.
- 1.9 Thus the appeal of Opponent I is admissible.

2. *Introduction of the documents filed with letter of 02 October 2009 into the procedure*
- 2.1 With letter of 02 October 2009, i.e. one month prior to the oral proceedings before the Board, the Opponent I submitted new documents allegedly destroying novelty of the sets of claims submitted with the grounds of appeal and submitted with the request to dismiss the appeal of Opponent I (labelled as "main request" and "first auxiliary request"). The Opponent I argued that these documents had to be taken into consideration due to their prima facie relevance.
- 2.2 The Patent Proprietors argued not to take these documents into consideration given their late submission.
- 2.3 The Board cannot see any reason why the Opponent I did not present the documents in due time. In the present case the appeal was filed by Opponent I on 15 January 2007 and the documents were only filed with letter of 02 October 2009, i.e. **more than two and a half years later**.
- 2.4 To have waited with the filing of new documents until about one month prior to the oral proceedings jeopardizes the whole object of such proceedings, which was to prepare a case for decision at the conclusion of the oral proceedings and denies to the Patent Proprietors sufficient time for filing a detailed counterstatement.
- 2.5 In particular **no reason** was given by the Opponent I for the late submission.

2.6 Thus, the Board decides not to introduce these documents into the procedure (see Article 13(1) and (3) RPBA, Supplement to OJ EPO 1/2009, page 41).

3. *Set of claims submitted with the grounds of appeal (labelled as "main request") - Novelty*

3.1 D1 describes a device for the detection of molecular structures; probes used for this detection may be synthesized in test sites on a chip. In column 13, lines 28-40 and Figure 17 a **specific embodiment** is described: the reactor comprises an array (400) of test sites (412) and an optical system represented by a laser (416). Figure 17 shows that the individual reaction sites are spatially separated. The passage in column 13 discloses, that a switchable mirror array may be used which acts as a light valve on selected sites, the pixel elements can be electronically switched "on" and "off". This embodiment is used as alternative to that of figures 1 to 4 for synthesizing DNA probes (column 11, line 66 to column 12, line 20 in combination with column 13, lines 28-29).

3.2 The Board has no doubt that, as found in the decision under appeal, point 4.3 of the reasons, the skilled person would have understood the switchable mirror array of D1 to be a digital micromirror device:

The switchable mirror array described in D1 is to be used as an alternative to a laser beam (column 13, lines 28/29). This laser beam is described as selectively irradiating individual test sites (column 12, lines 13/14), having dimensions of 100 x

100 μm each (Figure 3). Thus, the device according to D1, comprising mirrors capable of selectively irradiating such small areas must be a micromirror device. In addition, it has never been disputed by any of the parties, that the micromirror array according to D1 is a digital device. In fact, the Opponent I explained at the oral proceedings that the terms "switchable mirror array" and "digital micromirror device" are synonyms.

3.3 With respect to the passage in column 13 of D1 and Figure 17, the Patent Proprietors' arguments that D1 does not directly and unambiguously disclose the device according to Claim 1 of the patent-in-suit, cannot be accepted by the Board:

3.4 On the one hand Figure 17 shows unambiguously that the reaction sites are (spatially) isolated. Claim 1 of the set of claims submitted with the grounds of appeal (labelled as "main request") requires merely that "the reaction sites are isolated reaction sites". In the Board's view, by spatially separating, i.e. isolating the reaction sites, this criterion has been met.

3.5 On the other hand a computer (421) controlled spatial optical modulator comprising a switchable mirror array comprising a plurality of individual rocking mirrors for selectively irradiating isolated reaction sites is described in D1, see figure 17 and column 13, lines 32 to 40. Therefore, all the features of Claim 1 have been disclosed directly and unambiguously in combination in D1.

- 3.6 Hence, the set of claims submitted with the grounds of appeal (labelled as "main request") does not meet the requirement of Article 54 EPC.
4. *Set of claims submitted with the request to dismiss the appeal of Opponent I (labelled as "first auxiliary request") and set of claims labelled as "second auxiliary request" - Article 123(2) EPC*
- 4.1 Each Claim 1 of the set of claims labelled as "first" and "second" auxiliary request contains the feature "characterized in that an isolation means prevents diffusion of reagents between adjacent reaction sites and spatially isolates individual reaction sites".
- 4.2 Page 5 of the application as originally filed teaches that the array of sites contains a plurality of **isolated** reaction sites, but does not cite any means for preventing diffusion.
- 4.3 The passages on page 19, lines 21-24 and on page 21, lines 3-4 and 9-10 as originally filed refer to methods of preventing **H⁺** and **activator** diffusion and refer to a method of preventing activator diffusion between adjacent sites to be described later in the text. Since such methods have only been described on pages 34 to 36 in connection with the Figures 9A-9C, the passages cited above do not give a general teaching about diffusion prevention.
- 4.4 The passages on pages 34-36 as originally filed describe only the concrete embodiments of the figures 9A-9C for preventing such diffusion.

- 4.5 The reaction schemes on page 12 of the application as originally filed give an overview of the chemical reactions occurring in situ by irradiation. However, diffusion prevention has not been described on this page.
- 4.6 Thus, the teaching of the application as originally filed either discloses that the reaction sites are isolated - which is not synonymous for diffusion prevention, or describes specific embodiments for achieving this effect. The generalisation of Claim 1 has not been originally disclosed.
- 4.7 The set of claims submitted with the request to dismiss the appeal of Opponent I (labelled as "first auxiliary request") and the set of claims labelled as "second auxiliary request" thus do not meet the requirement of Article 123(2) EPC.
5. *Set of claims submitted with the letter dated 01 October 2007 (labelled as "third auxiliary request") - Article 123(2) EPC*
- 5.1 The set of claims labelled as "third auxiliary request" differs from the set of claims submitted with the request to dismiss the appeal of Opponent I (labelled as "first auxiliary request") in the passage "characterized in that an isolation means selected from the group consisting of microwell structures on a back cover (903), microwell structures on a substrate (913), and a pattern of non-wetting film on a substrate (933) prevents diffusion of reagents between adjacent reaction sites and spatially isolates individual reaction sites".

5.2 As confirmed by the Patent Proprietors in the oral proceedings, the three isolation means described in Claim 1 should represent the embodiments of Figures 9A-9C of the patent-in-suit.

5.3 The wording of the inserted text of Claim 1 can be found on page 10, last line to page 11, third line of the description as originally filed. However, these lines are only a general reference to Figures 9A-9C and do not contain all the features of these embodiments. A more detailed description can be derived from the figures themselves and from the text on pages 34-36 describing these figures.

5.4 The Board finds that the wording of Claim 1 is **for instance** more general than the closing mechanism described in embodiment 9A, according to which the reactionwells, **bounded by barriers** (903), are **embossed** on the cap (902) (page 34, lines 15 to 16) and the barriers are arranged in such a way as to create a **space** between adjacent buffer cells (passage bridging pages 34 and 35).

Embodiment 9B refers in the description to a similar closing mechanism, which is described to seal the individual reactionwells.

5.5 The insertion of the brief description of the figures according to pages 10/11 thus is not sufficient to describe the entire embodiments represented in the figures.

5.6 Even assuming that the features relating to such a closing/seal mechanism are not closely linked to the other features of the embodiments represented in the figures and that consequently the closing mechanism may be claimed separately, the description does not contain any support for general embodiments as reported in the claims.

5.7 Also the use of reference signs does not change this situation, since their role is merely to make the wording of the claims more understandable, but they are not to be seen as limiting.

5.8 Since the features in question are not reflected by the wording of Claim 1, this claim extends beyond the disclosure as originally filed; the requirement of Article 123(2) EPC is not considered to be met.

6. *Sets of claims labelled as "fourth" and "fifth" auxiliary request - Article 123(2) EPC*

6.1 The feature corresponding to embodiment 9A of the description is characterized in each Claim 1 of the sets of claims labelled as "fourth" and "fifth" auxiliary request as reactionwell structures on a cap and a seal mechanism to push the cap against the substrate. Embodiment 9B is described as reactionwell structures on a substrate, a cap having a flat inner surface and a seal mechanism to push the cap against the substrate.

6.2 As mentioned above, lines 15/16 on page 34 as originally filed disclose "reactionwells, **bounded by barriers**, are **embossed** on the cap. Furthermore the

first two lines on page 35 state that "the space between adjacent reaction-wells 904b and 904c provides a buffer zone 904d to further prevent any inter-mixing between reaction-wells. Embodiment 9B comprises also reaction well barriers and a seal mechanism similar to the one of embodiment 9A.

6.3 Again, since some of the features of the embodiments 9A and 9B reported in said passages are missing in Claim 1, the closing/sealing mechanism is defined in more general terms than in the application as originally filed.

6.4 Therefore the requirements of Article 123(2) EPC are not met for the same reasons as mentioned hereinabove.

7. *Further objections raised by Opponent I*

7.1 Since none of the requests meets the requirements of the EPC, a discussion of further objections raised by the Opponent I is not necessary.

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

G. Rauh

L. Li Voti