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# Datasheet for the decision of 28 March 2019

**Case Number:** T 0289/13 - 3.3.01

**Application Number:** 02767701.2

**Publication Number:** 1434995

**IPC:** G01N33/543

**Language of the proceedings:** EN

**Title of invention:**
CALIBRATING MICROARRAYS

**Applicant:**
Randox Laboratories Ltd.

**Relevant legal provisions:**
EPC R. 115(2)
RPBA Art. 15(3)
EPC Art. 54(2), 56

**Keyword:**
Oral proceedings - held in absence of appellant
Novelty - (no)
Inventive step - (no)

**Decisions cited:**

**Catchword:**

Europäisches Patentamt
European Patent Office
Office européen des brevets

**Beschwerdekammern**

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**Case Number: T 0289/13 - 3.3.01**

# D E C I S I O N
# of Technical Board of Appeal 3.3.01
# of 28 March 2019

| | |
|---|---|
| **Appellant:** (Applicant) | Randox Laboratories Ltd.<br>Ardmore,<br>Diamond Road<br>Crumlin, County Antrim BT29 4QY (GB) |
| **Representative:** | Gill Jennings & Every LLP<br>The Broadgate Tower<br>20 Primrose Street<br>London EC2A 2ES (GB) |
| **Decision under appeal:** | **Decision of the Examining Division of the European Patent Office posted on 16 July 2012 refusing European patent application No. 02767701.2 pursuant to Article 97(2) EPC** |

**Composition of the Board:**

| | |
|---|---|
| **Chairman** | A. Lindner |
| **Members:** | T. Sommerfeld |
| | M. Blasi |

## Summary of Facts and Submissions

I. The appeal lies from the decision of the examining division in which European patent application 02767701.2, based on an international application published as WO 03/031976, was refused under Article 97(2) EPC.

The examining division decided that none of the claim sets before it (main request and auxiliary requests 1 and 2) fulfilled the requirements of Article 54(2) EPC.

II. The applicant (hereinafter, the appellant) lodged an appeal against the decision of the examining division, requesting that the decision be set aside and that a patent be granted on the basis of the set of claims of the main request or, alternatively, on the basis of one of the sets of claims of the first, second or third auxiliary requests, all filed with the statement of grounds of appeal.

III. The board sent a communication pursuant to Rule 100(2) EPC and Article 17(1) RPBA, providing a negative opinion as regards novelty and inventive step.

IV. The appellant replied by letter dated 23 July 2018, replacing the previous requests with new sets of claims consisting of a main request and a first and second auxiliary requests.

Claim 1 of the **main request** reads as follows:

"1. A support material comprising an array of discrete first reaction sites, each reaction site comprising an immobilised first analyte, or a ligand having affinity for the first analyte, and a series of second reaction

sites comprising different known concentrations of a second analyte immobilised on the support, wherein the reaction sites are located on the same support material and are not separated by a wall or barrier that prevents the sites being contacted with the same fluid sample, and wherein the support material is a flat, planar surface onto which the first analyte, or ligand, and second analyte are immobilised, and wherein the first and second analytes are the same."

In the **first auxiliary request**, claim 1 has been amended as follows:

"1. ..., each reaction site comprising ~~an immobilised first analyte, or~~ a ligand having affinity for ~~the~~ a first analyte, ..."

In the **second auxiliary request**, claim 1 has been further amended as follows:

"1. ..., first analyte, or ligand, and second analyte are immobilised via a covalent linkage, and wherein the first and second analytes are the same."

V. The board sent summons to oral proceedings to take place on 28 March 2019.

VI. By letter dated 28 February 2019, the appellant informed the board that it would not attend oral proceedings.

VII. Oral proceedings took place as scheduled, in the absence of the appellant.

VIII. The documents cited in the examination and appeal proceedings include the following:

D1 GB 2324866
D2 WO 01/09607

IX. The appellant's arguments, in so far as relevant to the present decision, may be summarised as follows:

D2 disclosed the use of tubules arranged in parallel to form bundles, each tubule containing an agent of interest and forming an individual reaction site (page 5, lines 19 to 21); the external surface of the tubules formed a barrier between one tubule and the neighbouring tubules, meaning that the reaction sites were separated by barriers, in contrast to the arrays according to the invention. This was further apparent from D2's disclosure on page 8, lines 17 to 18, and Figure 4, referring to "multiwell", and from page 13, line 19, stating that the tubes were made of material such as glass, metal, ceramic or plastic, hence materials that did not allow passage of analytes. Accordingly, the claimed invention was novel. As to inventive step, the difference between D2 and the invention was that the second analyte immobilised to the support was intended to establish a calibration curve which had the benefit of improving the accuracy of detection of the analyte under study. It would not be obvious from D2 to generate an internal calibration curve whilst simultaneously determining an analyte. At best, the skilled person would have provided a series of "internal standards" which would have been discrete values of a particular set of concentrations for a particular analyte. Example 12 of D2, although disclosing that two different analytes were immobilised on the microarray, did not have the purpose of establishing a calibration curve, and quantitative results were achieved only by having the analytes in

serial dilution. As explained on page 76, lines 13 to 15, the intention of Example 12 was to use the microarray for detecting antigens and antibodies in convalescent serum, and not to establish a calibration curve to monitor the sensitivity of the reaction carried out with the other immobilised analyte. In contrast, the present invention established a calibration curve by having immobilised known concentrations of an analyte under study, which helped to provide very accurate results for the biochip reactions.

X. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the set of claims of the main request or, alternatively, on the basis of one of the sets of claims of the first or second auxiliary requests, all filed with the letter of 23 July 2018.

## Reasons for the Decision

1. The appeal is admissible.

2. The oral proceedings before the board took place in the absence of the appellant, who had been duly summoned but decided not to attend.

In accordance with Rule 115(2) EPC, the board decided to continue the proceedings in the appellant's absence. Moreover, pursuant to Article 15(3) RPBA, the board was not obliged to delay any step in the proceedings, including its decision, by reason only of the appellant's absence at the oral proceedings. In line

with this provision, the absent appellant was treated as relying only on its written case.

3. Main request

Novelty (Article 54(2) EPC)

3.1 The examining division considered the subject-matter of claim 1 of the then main request to lack novelty over the disclosure of document D2. Claim 1 of the present main request differs from claim 1 of the main request decided by the examining division in that the following features have been inserted: the support material is a flat, planar surface onto which the first analyte, or ligand, and the second analyte are immobilised; and the first and second analytes are the same. However, the appellant did not argue that these features rendered the subject-matter of the claim novel over the disclosure of D2. Rather, it argued that the claimed subject-matter differed from the disclosure of document D2 in that the reaction sites for the unknown sample to be quantified and for the known calibration samples were not separated by any means, such as a wall or barrier (a feature which was already present in the claim decided upon by the examining division). According to the appellant, such a feature was not disclosed in D2, which related to the use of tubules arranged in parallel to form bundles, each tubule forming an individual reaction site. The external surface of the tubules thus meant there was a barrier between each tubule.

3.2 The alleged distinguishing feature reads "wherein the reaction sites ... are not separated by a wall or barrier that prevents the sites being contacted by the same fluid sample" (emphasis added). This further

restriction is interpreted to mean that there may be a separation, but that this separation is not there to prevent all sites from being contacted by the same fluid sample. This appears to be implicit to any array, which by definition comprises many reaction sites which are to be put into contact simultaneously with one fluid sample (see e.g. the definition on page 1 of the application, lines 21 to 27). Hence, although this may not be explicitly stated in D2, it has to be considered an implicit feature. This is moreover apparent from e.g. Example 3 of D2, which discloses that the tubules forming the arrays are assembled into bundles which are sectioned. These sections are then mounted on glass slides and exposed to the sera (sample). Thus, the sections constitute the reaction sites which, obviously, even if being surrounded by walls, are not prevented from contacting the same sample. For the sake of completeness, Example 3 of D2 also discloses the remaining features of claim 1. The support material is a glass slide, which is a flat, planar, support, onto which the analytes are immobilised (the arrays which were incorporated with the analytes being glued onto the support). The reaction sites contain different suspensions of fixed selected viruses or bacteria (in known concentrations, with an average being defined in the example). Since the first and the second analytes are the same, according to the claim, it is not necessary to distinguish the reaction sites for the first analyte from those for the second analyte.

3.3 In a different context, i.e. in the discussion of inventive step, the appellant argued on the basis of yet another allegedly distinguishing feature, namely that, according to the invention, the second analyte immobilised to the support was intended to establish an internal calibration curve, which was not the case in

D2. However, such a feature is not present in claim 1 and therefore cannot constitute a distinguishing feature from the disclosure of D2. Claim 1 is a product claim directed at a support material which comprises an array of first and second reaction sites. Whatever the intended use of the second reaction sites, this use is not part of the claim, nor does it impose any structural requirements that would further limit the claim.

3.4 Hence, the subject-matter of claim 1 of the main request lacks novelty over the disclosure of document D2 (Article 54(2) EPC).

4. First auxiliary request

Novelty (Article 54(2) EPC)

4.1 Claim 1 of the first auxiliary request differs from claim 1 of the main request in that the alternative "an immobilised first analyte" has been deleted. This claim hence only encompasses first reaction sites comprising a ligand having affinity for the first analyte. It does not encompass, as claim 1 of the main request does, first reaction sites comprising the immobilised first analyte. Again, the first and the second analytes are the same, meaning that the claimed support comprises an array of discrete first reaction sites, comprising a ligand having affinity for an analyte and a series of second reaction sites comprising different known concentrations of the (same) analyte.

4.2 According to the appellant, such an array conformation is not disclosed in document D2. The board disagrees. Example 12 of D2 discloses microarrays for hepatitis testing with reaction sites comprising antibodies to

different hepatitis A, B and C antigens and reaction sites comprising the respective antigens. For each of reaction site, prepared according to Example 2, the concentration of the antibody or antigen is known (Example 2, page 66; Example 12, page 75). Hence Example 12 of D2 discloses a support comprising first reaction sites with a ligand having affinity for an analyte (an antibody or an antigen) and second reaction sites with a known concentration of the corresponding analyte (the respective antibody or antigen).

4.3 Again, the same argument as set out above (point 3.3) that Example 12 of D2 did not have the purpose of establishing a calibration curve is, for the same reasons as set out in relation to the main request, not relevant in the context of present claim 1, which is directed to a product and not a use.

4.4 The subject-matter of claim 1 of the first auxiliary request thus also lacks novelty over the disclosure of document D2 (Article 54(2) EPC).

5. Second auxiliary request

Novelty and inventive step (Articles 54(2) and 56 EPC)

5.1 Claim 1 of the second auxiliary request differs from claim 1 of the first auxiliary request in that the feature "via covalent linkage" has been introduced. Hence, the claim further requires, in relation to claim 1 of the first auxiliary request, that the first analyte, or ligand, and the second analyte be immobilised via a covalent linkage.

5.2 Document D2 discloses in several passages that the biomolecules which serve as analytes or ligands to the

analytes may be covalently attached to the reaction sites: e.g. page 20, lines 20 to 23; page 21, lines 3 to 5; page 28, lines 18 to 20 and line 24. However, the above-mentioned Example 12 of D2 does not disclose covalent attachment of the analytes or ligand. Hence the subject-matter of claim 1 may be considered novel over the disclosure of document D2.

5.3 D2, and in particular its Example 12, may be considered the closest prior art for the claimed subject-matter. The difference is that the analytes in the array according to Example 12 of D2 are not immobilised by covalent linkage. There is no evidence in the application or elsewhere on file that such a linkage leads to any particular technical effect, nor has the appellant argued this to be the case. Hence, the technical problem can be formulated as the provision of an alternative array, and the board is satisfied that the claimed solution solves this problem.

5.4 However, the board considers that the claimed solution is not inventive over the disclosure of D2, which already generally teaches covalent attachment of ligands or analytes as one possible attachment alternative. In fact, there is no disclosure in the patent application of a specific effect associated with this distinguishing feature, which is disclosed as being a conventional means for immobilising analytes on the surface of the material (e.g. page 4, lines 5 to 6). The patent application further states that "covalent immobilisation may be carried out using conventional techniques" and refers to GB-A-2324866 as an example (page 4, lines 12 to 15); GB-A-2324866 is document D1 in the present proceedings. It discloses devices for multianalyte assays (Title), which comprise "a substrate and a multiplicity of discrete reaction

sites each bearing a ligand covalently bound to the substrate" (page 4, first paragraph, under the heading "Summary of the Invention"), and discloses in detail how the covalent immobilisation can be carried out (e.g. disclosure starting on page 6, line 29 and following).

5.5 Hence, the subject-matter of claim 1 of the second auxiliary request, if at all novel, lacks inventive step over the disclosure of document D2 in combination with common general knowledge or the disclosure of D1.

**Order**

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

The appeal is dismissed.

The Registrar: The Chairman:

M. Schalow A. Lindner

Decision electronically authenticated