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**Datasheet for the decision  
of 8 November 2022**

**Case Number:** T 0496/20 - 3.4.02

**Application Number:** 10184868.7

**Publication Number:** 2306173

**IPC:** G01N15/14

**Language of the proceedings:** EN

**Title of invention:**

APPARATUS AND METHODS FOR PROVIDING SEX-SORTED ANIMAL SPERM

**Patent Proprietor:**

Inguran, LLC

**Opponent:**

ABS Global, Inc.

**Relevant legal provisions:**

EPC Art. 56, 123(2)

RPBA 2020 Art. 12(3), 12(5), 13(2)

**Keyword:**

Inventive step (main and auxiliary requests 1 to 3: no)  
Added subject-matter (auxiliary request 4: yes)  
Requests not substantiated - admittance (auxiliary requests 5  
to 7: no)  
Late filed request - to be taken into account (auxiliary  
request 8: no)

**Decisions cited:**

T 1033/10, T 2486/16, T 2539/16



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Case Number: T 0496/20 - 3.4.02

**D E C I S I O N**  
**of Technical Board of Appeal 3.4.02**  
**of 8 November 2022**

**Appellant:** Inguran, LLC  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
13 December 2019 concerning maintenance of the  
European Patent No. 2306173 in amended form.**

**Composition of the Board:**

**Chairman** R. Bekkering  
**Members:** F. J. Narganes-Quijano  
C. Almberg

## Summary of Facts and Submissions

- I. The patent proprietor and the opponent have each lodged an appeal against the interlocutory decision of the opposition division finding European patent No. 2306173 as amended according to auxiliary request 4 then on file to meet the requirements of the EPC.

The opposition filed by the opponent against the patent as a whole was based on the grounds for opposition of added subject-matter (Article 100(c) EPC), insufficiency of disclosure (Article 100(b) EPC) and lack of novelty and of inventive step (Articles 100(a), 52(1) and 54 or 56 EPC).

- II. Among the documents considered during the first-instance proceedings, the following documents have been cited *inter alia* by the parties during the appeal proceedings:

D6: "BD FACSDiva Option - White Paper", B Verwer; BD Biosciences (US), 2002; pages 1 to 22

D9: "New 350 mW UV Vanguard laser from Spectra-Physics", Press Release - News & Press, Spectra-Physics, 13 January 2003 (retrieved from [web.archive.org](http://web.archive.org) as of 19 March 2003); pages 1 and 2

D10: "Doublet Discrimination in DNA Cell-Cycle Analysis", R P Wersto *et al.*; Cytometry (Communications in Clinical Cytometry), Vol. 46 (2001); pages 296 to 306

D11: "SHM-180 - Eight Channel Sample & Hold Module", Becker & Hickl GmbH, 2003; pages 1 to 13

D12: "Sizing of DNA fragments by flow cytometry", M E Johnson *et al.*; Proc. SPIE, Ultrasensitive Laboratory Diagnostics, Vol. 1895 (1993); pages 1 to 10

D13: "Time-Resolved Polarization Imaging by Pump-Probe (Stimulated Emission) Fluorescence Microscopy", Ch Buehler *et al.*; Biophysical Journal, Vol. 79 (2000); pages 536 to 549.

In its decision the opposition division concluded *inter alia* as follows:

- the subject-matter of claim 1 of the main request (patent as granted) and of auxiliary requests 1 to 3 did not involve an inventive step (Article 56 EPC); and
- the patent as amended according to auxiliary request 4 and the invention to which it related met the requirements of the EPC, and in particular the requirements of Article 123(2) EPC.

III. With its statement of grounds of appeal the patent proprietor filed claims according to a main request and auxiliary requests 1 to 7. The patent proprietor requested that the decision under appeal be set aside and that the patent be maintained as granted (main request). It further stated that "auxiliary requests 1 to 7 filed during the opposition proceedings are maintained and filed herewith" (page 1), and that the claims of the auxiliary requests filed with the statement of grounds of appeal "mirror those filed before the Opposition Division during the opposition proceedings" (page 8).

IV. In a communication dated 14 January 2022 annexed to the summons to oral proceedings the board presented a preliminary assessment of the case. The board noted in particular that the claims of auxiliary request 4 filed

with the patent proprietor's statement of grounds of appeal corresponded not to the claims of auxiliary request 4 found allowable in the contested decision but to the claims of an earlier auxiliary request 4 filed with the letter dated 19 July 2019 and replaced at the oral proceedings before the opposition division. In addition, the patent proprietor's reply to the opponent's statement of grounds of appeal contested the arguments submitted by the opponent that auxiliary request 4 underlying the contested decision was not allowable. In these circumstances, the patent proprietor's case in appeal did not appear to be consistent and, more particularly, it was not clear to which of the two claim sets auxiliary request 4 was actually directed.

V. The patent proprietor submitted by letter dated 1 November 2022 claims according to auxiliary request 8 and stated that the claims of this request corresponded to the method claims of auxiliary request 4 considered allowable in the decision under appeal, the apparatus claims having been deleted.

VI. Oral proceedings before the board were held on 8 November 2022.

The patent proprietor requested that the decision under appeal be set aside and that the patent be maintained as granted (main request), or as amended based on the claims of one of auxiliary requests 1 to 3 filed with the statement of grounds of appeal. Subsidiarily, it requested that the appeal of the opponent be dismissed, i.e. that the patent be maintained as amended based on auxiliary request 4 subject of the decision under appeal and found allowable by the opposition division. Further subsidiarily, the patent proprietor requested

that the decision under appeal be set aside and that the patent be maintained as amended based on the claims of one of

- auxiliary requests 5 to 7 filed with the statement of grounds of appeal, and

- auxiliary request 8 filed with the letter of 1 November 2022.

The opponent requested that the decision under appeal be set aside and that the patent be revoked.

At the end of the oral proceedings the chair announced the decision of the board.

VII. Claim 1 of the main request (patent as granted) reads as follows:

"A flow cytometry apparatus comprising:

- a flow channel for directing a fluid stream containing sperm cells through an interrogation location;

- a laser operable to emit a plurality of electromagnetic radiation (EMR) pulses, each pulse having a peak power that exceeds the average power of the laser, said pulses being directed along a beam path from the laser to the interrogation location, wherein the laser is operable to emit EMR pulses having a width of 1-100 picoseconds at a pulse frequency of 50-150 MHz at a power of 100-500 milliwatts;

- a timing circuit operable to produce a timing signal indicative of the of [sic] arrival of pulses at the interrogation location;

- a detector adapted to detect EMR from the interrogation location and operable to output a time-varying analog signal indicative of the intensity of the detected EMR;

an analog to digital converter adapted to receive the time-varying analog signal as input and to sample the analog signal to produce a digitized output;

an electronic processor operable to analyze the digitized output from the analog to digital converter as a function of the timing signal, wherein the electronic processor is further operable to process the digitized output as a pulse waveform and to extract a pulse peak and pulse area from the pulse waveform."

Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that the claim further reads as follows:

"to discriminate between X sperm cells and Y sperm cells."

Claim 1 of auxiliary request 2 is identical to claim 1 of the main request.

Claim 1 of auxiliary request 3 is identical to claim 1 of auxiliary request 1.

Claim 1 of auxiliary request 4 (i.e. of auxiliary request 4 underlying the decision under appeal) differs from claim 1 of the main request in that the last paragraph of the claim reading "an electronic processor operable to analyze [...] from the pulse waveform." is replaced by the following text:

"an electronic processor operable to:  
control the analog to digital converter as a function of the timing signal to sample the time-varying analog signal at or near peak intensity of the detected EMR;



analyze the digitized output from the analog to digital converter as a function of the timing signal; and

process the digitized output as a pulse waveform and to extract a pulse peak and pulse area from the pulse waveform to discriminate between X sperm cells and Y sperm cells."

Independent claim 9 of auxiliary request 4 (i.e. of auxiliary request 4 underlying the decision under appeal) reads as follows:

"A method of analyzing sperm cells contained in a fluid stream as they flow through an interrogation location, said method comprising the steps of:

emitting a plurality of electromagnetic radiation (EMR) pulses from a laser, wherein the peak power of each pulse exceeds the average power of the laser, wherein the step of emitting pulses of electromagnetic radiation comprises the step of emitting between 50-150 million pulses per second, wherein each pulse has a width between 1-100 picoseconds;

intermittently illuminating the fluid stream and the sperm cells contained therein by directing said pulses along a beam path from the laser to the interrogation location;

detecting EMR from the interrogation location; generating a time-varying analog signal indicative of the intensity of the detected EMR;

generating a timing signal indicative of the arrival of a pulse at the interrogation location;

converting the time-varying analog signal into a digital signal;

controlling the analog to digital converter as a function of the timing signal to sample the time-

varying analog signal at or near peak intensity of the detected EMR

analyzing the digital signal to determine characteristics of the sperm cells in the fluid stream, wherein the step of analyzing the digital signal further comprises extracting a pulse peak and pulse area from a pulse waveform represented by the digital signal to discriminate between X sperm cells and Y sperm cells."

Claim 1 of auxiliary request 5 differs from claim 1 of the main request in that the paragraph reading "a timing circuit operable to [...] at the interrogation location" further reads as follows:

"wherein the timing circuit comprises a clock that is operable to trigger the laser to emit a pulse;"

and in that the last paragraph of the claim reading "an electronic processor operable to analyze [...] from the pulse waveform." is replaced by the following text:

"an electronic processor operable to control the analog to digital converter to sample the output signal of the detector at or near peak EMR, wherein the sampling rate of the analog to digital converter is synchronized with the emitted EMR pulses, wherein the electronic processor is further operable to process the digitized output as a pulse waveform and to extract a pulse peak and pulse area from the pulse waveform to discriminate between X sperm cells and Y sperm cells."

Claim 1 of auxiliary request 6 differs from claim 1 of auxiliary request 5 in the omission of the phrase "wherein the timing circuit comprises a clock that is operable to trigger the laser to emit a pulse" in the

paragraph reading "a timing circuit operable to [...]".

Claim 1 of auxiliary request 7 is identical to claim 1 of auxiliary request 5.

Claim 1 of auxiliary request 8 is - except for the insertion of the punctuation mark ";" at the end of the paragraph reading "controlling the analog to digital converter as [...]" - identical to independent claim 9 of auxiliary request 4.

## **Reasons for the Decision**

1. The appeal of the patent proprietor and the appeal of the opponent are admissible.
2. *Main request - Claim 1 - Inventive step*
  - 2.1 The opposition division held in its decision that the subject-matter of claim 1 of the main request (patent as granted) did not involve an inventive step in view of the flow cytometry apparatus of document D12 as closest prior art (Fig. 1, together with page 2, last paragraph, to page 3, second paragraph) in combination with the digital processing of time-variable analog signals disclosed in document D6 (Fig. 3, and sections 2.2 and 2.3) or document D10 (Fig. 5, and page 300, sections "Flow Cytometry" and "Histogram Analysis"), and under consideration of the laser disclosed in document D9 and the disclosure of document D11 (page 2) and document D13 (Fig. 4) relating to digital processing. The patent proprietor contested this view

and essentially submitted that document D12 could not be considered as the closest prior art and that, in any case, the opposition division's reasoning of lack of inventive step was not persuasive.

- 2.2 As regards the selection by the opposition division of document D12 as closest prior art, the patent proprietor referred to the case law of the boards of appeal and submitted that the process disclosed in document D12 was very different from that of the claimed invention (sizing DNA by flow cytometry vs. sorting sperm cells by flow cytometry), and that document D12 was directed to a technical problem (preventing misidentification of DNA size due to Raman scattering) that was neither the same nor similar to that of the invention (ensuring that data is gathered at the peak emission in order to better discriminate between X and Y sperm cells). In addition, the issues of Raman scattering encountered in document D12 were due to the use of a pulsed laser in the flow cytometer and resulted in disadvantages when sizing DNA (page 7, first paragraph) and, therefore, document D12 taught away from the technical problem of the claimed invention, and in particular from the use of pulsed lasers, because of the need to time shift the data collection to overcome the Raman noise.

The board first notes that according to the case law cited by the patent proprietor the closest prior art "should relate to the same or a similar technical problem or, at least, to the same or a closely related technical field as the patent in suit" [*emphasis added by the board*] ("Case Law of the Boards of Appeal" EPO, 10th edition 2022, I.D.3.3, first paragraph), and that this principle does not exclude considering document D12 as closest prior art at least because both claim 1

as granted and document D12 are directed to a flow cytometry apparatus operating with a pulsed laser (D12, title, and paragraph bridging pages 2 and 3) and the document therefore pertains to "a closely related technical field as the patent in suit". In addition, according to the case law also cited by the patent proprietor the closest prior art "is normally a prior art document disclosing subject-matter conceived for the same purpose or aiming at the same objective as the claimed invention and having the most relevant technical features in common, i.e. requiring the minimum of structural modifications" [*emphasis added by the board*] ("Case Law of the Boards of Appeal" EPO, *supra*, I.D.3.1, first paragraph), and also this principle does not exclude considering document D12 as closest prior art, in particular because claim 1 ("A flow cytometry apparatus comprising: a flow channel for directing a fluid stream containing sperm cells ...") as granted is not restricted to the analysis, and in particular to the discrimination, of sperm cells and, in addition, because, although the specific purpose of document D12 (cytometry of DNA fragments) is not identical to that specified in the patent (cytometry and discrimination of sperm cells), both purposes ultimately rely - as submitted by the opponent - on the detection of the DNA content in the interrogated sample (see paragraph [0006] of the patent specification). In addition, claim 1 and document D12 are - as also submitted by the opponent - directed to an apparatus for performing flow cytometry of particles based on fluorescence measurements, and the apparatus of both document D12 and claim 1 share a number of relevant technical features.

The further argument submitted by the patent proprietor in support of its view that document D12 did not

qualify as closest prior art because the need for temporal discrimination against scattering disclosed in document D12 as a disadvantage when sizing DNA fragments (page 7, first paragraph) would teach away from the technical problem or objective of the invention is not persuasive either. As submitted by the opponent, document D12 discloses sampling the signal with a short delay after the excitation pulse arrives at the interrogation location for the purpose of maximising the signal attributable to the fluorescence emissions and rejecting other sources of radiation such as Raman scattering (document D12, page 4, last paragraph, lines 4 to 8), and the patent is based on synchronising the sampling with the excitation laser pulse with a delay provided to synchronise the analog to digital converter with the peak of each fluorescence signal, thereby maximising the signal (see Fig. 50 and 51 of the patent, together with the corresponding description in paragraphs [0199] to [0202], in particular the penultimate sentence of paragraph [0202]). Therefore, both document D12 and the patent in suit address similar problems relating to what in document D12 is called the disadvantageous need for temporal discrimination, and in this context the board sees in the patent proprietor's submissions no reason that would justify not considering document D12 as closest prior art.

In view of all these considerations, the board sees no reason to disregard document D12 as closest prior art in the evaluation of inventive step according to the problem-solution approach.

2.3 As regards the opposition division's reasoning of lack of inventive step on the basis of document D12 as closest prior art, the patent proprietor submitted that

none of the documents disclosed the digital processing defined in claim 1.

2.3.1 According to a first argument of the patent proprietor, while in document D12, the means used to adjust the pulses from the PMT (photomultiplier tube) processed by the CFD (constant fraction discriminator) with respect to the pulses from the VPD (vacuum photodiode) processed by the CFD in order to maximize the signal to noise ratio were analog, and these pulses were input into the FLU (very fast coincidence logic unit) and the output from the FLU was also an analog signal, thus resulting in a signal chain up to the MCS (multichannel scaler) that was analog and not digital (Fig. 1 together with page 2, last paragraph, to page 3, second paragraph), the apparatus of claim 1 was based on the use of digital processing of the pulses to increase the speed of analysis (paragraph [0200] of the patent specification).

The board notes, however, that document D12 was published in 1993 and that, in view of the subsequent developments relating to the use of all-digital processing means in this technical field (illustrated, for instance, in document D6, section "Introduction" on page 2, first paragraph, and points 2.2 and 2.3 on page 5; see also documents D11 (page 2, section "System Architecture") and D13 (Fig. 4) also considered by the opposition division in this context), it was - as submitted by the opponent and as held by the opposition division in its decision - obvious for the skilled person at the filing date of the patent in suit to consider in the context of document D12 to first convert the analog detection pulses into digital signals using an analog-to-digital converter before carrying out the subsequent processing and analysis of

the signals in order to increase the speed of the analysis of the detection pulses. In addition, no technical effect other than those already known as being associated with the use of all-digital processing means is involved in the claimed features relating to the conversion of the analog signals into digitized signals and the digital processing of these signals.

- 2.3.2 The patent proprietor also submitted that, while the pulses from the VPD were used in document D12 to allow discrimination of the analog pulses from the PMT when input into the FLU, the electronic processor of claim 1 was operable to analyse the digitized output from the analog to digital converter as a function of the timing signal after the detector detected transit of a particle through the interrogation zone, and the timing signal was used to achieve synchronization of the laser pulse and the digital information relating to the fluorescence pulse within the electronic microprocessor.

The board notes that claim 1 requires the analysis of the output from the detector "as a function" of the timing signal after the mentioned output has been converted into a digital signal, but that claim 1 is silent as to the specific features of the mentioned "function". The patent proprietor's submissions relating to the timing signal being used to achieve synchronization of the laser pulse and the digital information relating to the fluorescence pulse are therefore not supported by the subject-matter actually claimed. In addition, in the opinion of the board the output signal from the photodiode VPD of document D12 (Fig. 1) constitutes a timing signal as claimed, and in document D12 both the output signal from the detector PMT and the output signal from the photodiode VPD are,



after having being delayed with respect to each other, "used as inputs to a very fast coincidence logic unit [...] for time gating" and the "output of the logic unit was then counted with a multichannel scaler" (page 3, second paragraph, lines 4 to 7). Therefore, the output signal from the detector PMT is analysed in document D12 "as a function" of the timing signal within the proper meaning of this expression. In addition, after having considered in an obvious way the provision in document D12 of digital signal processing means (see point 2.3.1 above, second paragraph), it would have been obvious to the skilled person to first consider converting the analog output signal from the detector PMT into a digitized output signal and then to analyse this signal as a function of the timing signal as disclosed in document D12.

- 2.3.3 The patent proprietor also referred to the fragile nature of sperm cells and to the claimed laser settings and submitted that, contrary to the opposition division's view, the skilled person would not have considered sorting sperm cells with a high peak power laser with short pulse durations such as that disclosed in document D9.

This argument is in the board's opinion not persuasive either because claim 1 is directed to an apparatus only suitable for being operated with sperm cells (see feature "a flow channel for directing a fluid stream containing sperm cells") and none of the claimed features restricts the claimed apparatus to its use with sperm cells, let alone to its use for specifically sorting sperm cells. In addition, the flow cytometer disclosed in document D12 operates with a high peak power laser with short pulse durations (page 2, lines 2 and 3 from the bottom), the use of the specific high

peak power laser with short pulse durations disclosed in document D9 (first and second paragraphs) in the flow cytometer of document D12 was considered by the opposition division as being obvious, and the board does not see in what respect the skilled person would have been dissuaded from the use of the laser of document D9 in the flow cytometer of document D12 because the mentioned laser is specifically disclosed in document D9 for use in "flow cytometry and cell sorting" (D9, third paragraph).

- 2.4 In view of the above considerations, the board concludes that none of the arguments submitted by the patent proprietor are convincing. Consequently, the board sees no reason to overturn the opposition division's conclusion that the apparatus defined in claim 1 as granted was obvious in view of document D12 as closest prior art in combination with document D9 and with document D6 or document D10, and under consideration of any of documents D11 and D13 (Article 56 EPC).

Therefore, the ground for opposition under Article 100(a) together with Article 56 EPC prejudices the maintenance of the patent as granted (main request).

3. *Auxiliary requests 1 to 3 - Claim 1 - Inventive step*

- 3.1 The patent proprietor disputed the opposition division's view that the subject-matter of claim 1 of each of auxiliary requests 1 to 3 did not involve an inventive step and submitted that sperm cells were fragile and the skilled person would be disinclined to believe that the prior art devices considered in the evaluation of inventive step of claim 1 as granted could be used with sperm cells.

3.2 Claim 1 of auxiliary request 1 differs from claim 1 as granted only in that the last feature of the claim reading "an electronic processor operable [...] to process the digitized output [...] and to extract a pulse peak and pulse area from the pulse waveform" further reads "to discriminate between X sperm cells and Y sperm cells."

The board first notes that claim 1 of auxiliary request 1 is directed to an apparatus, and not to the use of the apparatus with a sample of sperm cells or to a method of analysing and sorting sperm cells, and that, as already mentioned in point 2.3.3 above, second paragraph, the reference in the claim to "a flow channel for directing a fluid stream containing sperm cells [...]" restricts the claimed apparatus only in that the flow channel is suitable for directing a fluid stream containing sperm cells as claimed. In addition, in the board's view the feature of claim 1 of auxiliary request 1 reading "an electronic processor [...] further operable to process the digitized output [...] and to extract a pulse peak and pulse area [...] to discriminate between X sperm cells and Y sperm cells" restricts - contrary to the opposition division's view (see minutes of the first-instance oral proceedings, point 5.3, and decision under appeal, page 10, second paragraph, lines 3 to 5) - the claimed apparatus only in that the electronic processor is operable to process data so as to result in extracted processed data which, when representing data resulting from the detection of sperm cells, would allow the discrimination between X and Y sperm cells. In other words, the reference to the sperm cells only specifies the intended purpose of the extraction of a pulse peak and pulse area, or the intended use of the corresponding data. Therefore,

contrary to the patent proprietor's submissions, the apparatus of claim 1 of auxiliary request 1 is not restricted to the discrimination of sperm cells or to its operation with sperm cells and, in addition, the apparatus resulting from the combination of documents considered in respect of the issue of inventive step of claim 1 as granted (see point 2 above) would be such that, when used with sperm cells, the information extracted by the electronic processor from the pulse waveform would be usable in the discrimination between X and Y sperm cells.

It follows from these considerations and those set forth in point 2 above in respect of claim 1 as granted that the subject-matter of claim 1 of auxiliary request 1 does not involve an inventive step (Article 56 EPC).

3.3 Claim 1 of auxiliary request 2 is identical to claim 1 of the main request, and claim 1 of auxiliary request 3 is identical to claim 1 of auxiliary request 1. Therefore, the subject-matter of claim 1 of each of auxiliary requests 2 and 3 does not involve an inventive step for the same reasons given in points 2 and 3.1 above in respect of claim 1 of the main request and of auxiliary request 1, respectively (Article 56 EPC).

3.4 It follows from the considerations in points 3.2 and 3.3 above that auxiliary requests 1 to 3 are not allowable.

4. *Auxiliary request 4 - Claim 1 - Article 123(2) EPC*

4.1 During the oral proceedings before the board the patent proprietor clarified auxiliary request 4 (see point IV above) by confirming that its claims correspond to

auxiliary request 4 found allowable in the decision under appeal.

4.2 In the communication annexed to the summons to the oral proceedings the board noted *inter alia* that, in the event that the claims of auxiliary request 4 corresponded to those of auxiliary request 4 underlying the decision under appeal, claim 1 of this request would contravene the requirements of Article 123(2) EPC. The board noted in particular that

- according to claim 1 as granted and to claim 1 of auxiliary request 4, and as disclosed in claim 1 and in item "S1" bridging pages 149 and 150 of the description as originally filed, "the digitized output from the analog to digital converter" is analysed "as a function of the timing signal", and

- according to claim 1 of auxiliary request 4 the analog-to-digital converter is controlled "as a function of the timing signal to sample the time-varying analog signal [...]", and this feature is based on the passage of the description as originally filed on page 73, lines 17 to 21.

Therefore, while the application as originally filed discloses

- an apparatus in which a timing signal is generated for a first purpose, namely controlling the sampling of the analog signal by the analog-to-digital converter - whereby the mentioned control already constitutes an analysis of the analog signal as a function of the timing signal, see Fig. 50 and page 73, lines 7 to 31, of the application as originally filed, and

- a second apparatus in which the timing signal is generated for a second different purpose, namely analysing the digitized output from the analog-to-digital converter,

claim 1 of auxiliary request 4 requires that the timing signal is generated for both purposes, i.e. to fulfil a double function. However, there is no basis in the application as originally filed for controlling an analog-to-digital converter as a function of a timing signal to sample an input analog signal and subsequently analysing the digitized output signal from the analog-to-digital converter as a function of the timing signal (Article 123(2) EPC).

- 4.3 During the oral proceedings before the board the patent proprietor referred to Fig. 50 and 51 and to the corresponding description of the application as originally filed, and in particular to the passage on page 73, lines 24 to 31, and submitted that the time-varying analog signal sampled by the analog to digital converter as a function of the timing signal resulted into the time-varying digital signal represented in Fig. 50 and 51 and that, therefore, this digital signal depended on the timing signal. It was therefore implicit for the skilled person that any subsequent analysis of this digital signal, and in particular the analysis disclosed by reference to Fig. 51, would be a function of the timing signal.

The board, however, cannot agree with this argument. The disclosure of Fig. 50 and 51 relates to the analysis of a time-varying digital signal previously obtained by sampling the analog signal as a function of the timing signal, but the analysis itself is based on the resulting time-varying digital signal as such. In particular, there is no basis in the corresponding disclosure that the analysis of the resulting time-varying digital signal would be performed taking anew into account the timing signal as required by the claimed feature "analyze the digitized output from the

analog to digital converter as a function of the timing signal". More particularly, this claimed feature would, as submitted by the opponent, be understood by the skilled person as requiring that the timing signal would be involved in the mentioned analysis beyond the fact that the digital signal being analysed was initially sampled as a function of the timing signal.

- 4.4 In view of the above considerations, the board is of the opinion that the subject-matter of claim 1 of auxiliary request 4 extends beyond the content of the application as filed (Article 123(2) EPC).

For this reason, auxiliary request 4 is not allowable.

5. *Auxiliary requests 5 to 7 - Articles 12(3) and 12(5) RPBA 2020*

The claims of auxiliary requests 5 to 7 filed by the patent proprietor with its statement of grounds of appeal correspond to the claims of auxiliary requests 5 to 7 filed during the first-instance proceedings. However, the allowability of auxiliary requests 5 to 7 was not addressed in substance by the patent proprietor in its statement of grounds of appeal, and also not in its reply to the statement of grounds of appeal filed by the opponent. In these circumstances, the patent proprietor's appeal case is not complete within the meaning of Article 12(3) RPBA 2020 in respect of auxiliary requests 5 to 7. In particular, the patent proprietor did not "set out clearly and concisely the reasons why", taking into account the circumstances of the case, any of auxiliary requests 5 to 7 would be allowable (see Article 12(3) RPBA 2020, first paragraph, second sentence).

According to Article 12(5) RPBA 2020 the board "has discretion not to admit any part of a submission by a party which does not meet the requirements" of Article 12(3) RPBA 2020. In the absence of substantiation concerning the allowability of auxiliary requests 5 to 7, the board, in the exercise of its discretion, decided not to admit auxiliary requests 5 to 7 into the appeal proceedings (Article 12(5) RPBA 2020).

6. *Auxiliary request 8*

6.1 Auxiliary request 8 was filed on 1 November 2022, i.e. after notification of the summons to the oral proceedings before the board. Consequently, its admission is at the board's discretion under Article 13(2) RPBA 2020. The claims of this request, i.e. claims 1 to 6, consist of the method claims 9 to 14 of auxiliary request 4 underlying the decision under appeal.

6.2 During the oral proceedings before the board the opponent requested that auxiliary request 8 not be admitted into the proceedings. The opponent referred to the case law relating to the submissions of amended requests at a very late stage of the proceedings, and in particular to decisions T 1033/10, T 2486/16 and T 2539/16, and submitted that the patent proprietor had not mentioned any cogent reason justifying the late submission of auxiliary request 8. The opponent further stressed that the patent proprietor had clarified and confirmed for the first time during the oral proceedings before the board that auxiliary request 4 consisted of auxiliary request 4 underlying the decision under appeal. In addition, all the previous requests included claims directed to an apparatus and claims directed to a method, and the opponent would



have addressed in a more specific way the method of the invention if some previous request only directed to the method of the invention would have been filed at an earlier point in time.

The patent proprietor submitted that auxiliary request 8 was submitted in reaction to the objection under Article 123(2) EPC raised for the first time in the board's communication in respect of the apparatus claim 1 of auxiliary request 4. Furthermore, claim 1 of auxiliary request 8 was identical to independent claim 9 of auxiliary request 4 and had already been addressed during the proceedings, and in particular by the opponent in its statement of grounds of appeal. In addition, the mere deletion of the apparatus claims of auxiliary request 4 did not give rise to new issues.

6.3 The board notes, on the one hand, that the deletion of the apparatus claims of auxiliary request 4 results in the claims of auxiliary request 8 overcoming the objection under Article 123(2) EPC considered in point 4 above in respect of the apparatus claim 1 of auxiliary request 4, and that the fact that this objection was raised for the first time by the board in the communication annexed to the summons to oral proceedings may constitute an exceptional circumstance within the meaning of Article 13(2) RPBA 2020 that may in principle justify taking into account auxiliary request 8 in the appeal proceedings.

On the other hand, the board notes that claim 1 of auxiliary request 8 corresponds to independent method claim 9 of auxiliary request 4 underlying the decision under appeal and that both independent claims 1 and 9 of this request were already addressed by the opponent in its statement of grounds of appeal, but that the

opponent's statement of grounds of appeal focused, in substance, on objections raised under Articles 123(2), 84 and 56 EPC in respect of the apparatus claim 1 of auxiliary request 4. Independent method claim 9 of auxiliary request 4 was also objected to under the mentioned articles, but essentially only by reference to the submissions made in respect of claim 1, i.e. without addressing in detail the specific features of the claimed method. Furthermore, all the patent proprietor's requests prior to the filing of auxiliary request 8 contained both an independent apparatus claim and an independent method claim, and there was no need for the opponent to address in detail the method claims because in the mentioned circumstances the opponent's request for revocation of the patent was sufficiently substantiated by the opponent by setting out in detail the reasons why in its opinion one of the independent claims, i.e. the independent apparatus claim, of each of the mentioned requests would not be allowable. The board notes in this respect that, as already indicated in its communication, the apparatus claims and the method claims would require a separate substantive evaluation because, contrary to the case of the method of independent claim 9, the apparatus defined in claim 1 appeared to be limited to the discrimination of X and Y sperm cells only to the extent that the apparatus was suitable for this purpose (see point 3.2 above, second paragraph) and, in addition, contrary to the case of the apparatus of claim 1 (see point 4.2 above), the method of independent claim 9 did not require an analysis of the digital output from the analog-to-digital converter as a function of the timing signal.

In these circumstances, only with the submission of auxiliary request 8 one week before the oral proceedings the patent proprietor clarified and

unequivocally confirmed for the first time during the appeal proceedings its intention to further pursue in appeal claims of auxiliary request 4 underlying the contested decision (see point IV above). In addition, the submission of auxiliary request 8 one week before the oral proceedings resulted in the opponent being confronted for the first time with a request containing only method claims and therefore with the need to substantiate in detail its case in respect of such method claims. For these reasons, the filing of auxiliary request 8 constituted in the board's view an amendment to the patent proprietor's appeal case within the meaning of Article 13(2) RPBA 2020 and, more particularly, a shift of the appeal case to method claims requiring a specific substantive evaluation that was not required in respect of the previous requests.

In addition, it is incumbent on a party to clarify and to present its requests as soon as possible if such requests are to be admitted and considered (see, for instance, decision T 1033/10, point 5.5 of the reasons), and the patent proprietor has submitted no cogent reason that would justify the delay of more than nine months between the board's communication of 14 January 2022 and the submission of auxiliary request 8 in November 2022, i.e. one week before the oral proceedings (see, for instance, decisions T 2486/16, point 6.5.6 of the reasons, and T 2539/16, point 3.3 of the reasons, last paragraph).

In view of the above considerations, and in particular in view of the absence of cogent reasons that would, in the specific circumstances mentioned above, have prevented the patent proprietor from submitting auxiliary request 8 at an earlier stage of the proceedings, the board, on a balance of all the

relevant circumstances, decides not to take into account auxiliary request 8 (Article 12(3) RPBA 2020).

7. In the absence of an admissible and allowable claim request, the patent is to be revoked.

## Order

### For these reasons it is decided that:

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

The Registrar:

The Chair:



L. Gabor

R. Bekkering

Decision electronically authenticated