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Paper No. 47
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INSTRUMENTATION LABORATORY COMPANY,
Petitioner,

v.

HEMOSONICS LLC,
Patent Owner.

Case IPR2017-00852
Patent 9,272,280 B2

Before JO-ANNE M. KOKOSKI, KRISTINA M. KALAN, and JEFFREY W. ABRAHAM, *Administrative Patent Judges*.

ABRAHAM, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318 and *37 C.F.R. § 42.73*

I. INTRODUCTION

Instrumentation Laboratory Company ("Petitioner") filed a Petition seeking *inter partes* review of claims 1 and 2 of U.S. Patent No. 9,272,280 B2 (Ex. 1001, "the '280 patent"). Paper 2 ("Pet."). HemoSonics LLC ("Patent Owner") filed a Patent Owner Preliminary Response to the Petition. Paper 6 ("Prelim. Resp."). On September 1, 2017, we instituted an *inter partes* review of claims 1 and 2. Paper 14 ("Inst. Dec.") (instituting trial on all claims but not all grounds raised in the Petition).

After institution, Patent Owner filed a Patent Owner Response (Paper 19, "PO Resp.") and Petitioner filed a Reply (Paper 22, "Reply"). On April 26, 2018, we issued an order modifying our institution decision to include all grounds raised in the Petition. Paper 26. After receiving authorization from the Board, Petitioner filed a Supplemental Reply (Paper 27, "Suppl. Reply") addressing the grounds not addressed in its Reply.

An oral hearing was held on June 12, 2018, and a supplemental hearing was held on August 14, 2018. A transcript of each hearing has been entered into the record of the proceeding. Paper 37 ("Hearing Tr."); Paper 46 ("Suppl. Hearing Tr.").

On August 28, 2018, the Deputy Chief Administrative Patent Judge determined that there was good cause to extend the one-year period for issuing a Final Written Decision in this proceeding, in accordance with 37 C.F.R. § 42.100(c). Paper 44. On the same day, we issued an order extending the time of pendency in this proceeding by up to six months. Paper 45.

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1 and 2 are unpatentable.

II. BACKGROUND

A. Related Proceedings

The parties identify the petition for *inter partes* review of related U.S. Patent No. 9,410,971 B2 (IPR2017-00855) as a related proceeding. Pet. 1; Paper 3, 1. The parties indicate that U.S. Patent Application No. 15/202,059 may be affected by this *inter partes* review (Pet. 1, Paper 3, 1), and Petitioner indicates that U.S. Patent Application No. 15/357,492 may also be affected by this *inter partes* review (Pet. 1).

B. The '280 Patent

The '280 patent, titled "Device, Systems and Methods for Evaluation of Hemostasis," issued on March 1, 2016. Ex. 1001, at [54], [45]. The '280 patent explains that hemostasis is the physiological control of bleeding, and is "a complex process incorporating the vasculature, platelets, coagulation factors (FI-FXIII), fibrinolytic proteins, and coagulation inhibitors." *Id.* at 1:29–32. The '280 patent indicates that "[d]isruption of hemostasis plays a central role in the onset of myocardial infarction, stroke, pulmonary embolism, deep vein thrombosis and excessive bleeding," and, therefore, there is a critical need for in vitro diagnostics to "quantify hemostatic dysfunction and direct appropriate treatment." *Id.* at 1:32–37.

Accordingly, the '280 patent is directed to devices, systems, and methods for evaluating hemostasis, specifically "sonorheometric devices for evaluation of hemostasis in a subject by in vitro evaluation of a test sample

from the subject." *Id.* at 2:22–25. The '280 patent discloses a device comprising a cartridge having a plurality of test chambers configured to receive a test sample of blood and a reagent or combination of reagents that interact with the blood sample. *Id.* at 2:25–34. The test chambers are also configured to be "interrogated with sound to determine a hemostatic parameter of the test samples" (*id.* at 2:35–37, 2:43–45), and "[s]ound reflected from the blood reagent mixture in the test chamber is received and processed to generate a hemostasis parameter" (*id.* at 3:3–5).

C. Illustrative Claim

Petitioner challenges claims 1 and 2 of the '280 patent. Independent claim 1 is illustrative, and is reproduced below:

> 1. A device for evaluation of hemostasis, comprising:
>
> a plurality of test chambers each configured to receive blood of a test sample, each test chamber comprising a reagent or combination of reagents, wherein each chamber is configured to be interrogated to determine a hemostatic parameter of the blood received therein;
>
> a first chamber of the plurality comprising a first reagent or a first combination of reagents that interact with the blood received therein, wherein the first reagent, or a reagent included in the first combination of reagents, is an activator of coagulation; and
>
> a second chamber of the plurality comprising a second combination of reagents that interact with blood of the test sample received therein, the combination including an activator of coagulation and one or both of abciximab and cytochalasin D.

D. References

Petitioner relies on the following references:

> Baugh et al., U.S. Patent No. 6,221,672 B1, issued Apr. 24, 2001 ("Baugh," Ex. 1005).

Schubert et al., U.S. Pub. No. 2010/0154520 A1, published June 24, 2010 ("Schubert," Ex. 1006).

E. Reviewed Grounds

Reference	Statutory Basis	Claims Challenged
Baugh	§ 102	1 and 2
Schubert	§ 102	1 and 2

F. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art would have had "a bachelor's or advanced degree in chemistry, biochemistry, mechanical engineering, or a related discipline, with at least four years of experience in an academic research institution, a hospital research laboratory or medical device company designing or creating devices for evaluating hemostasis." Pet. 7–8; Ex. 1003 ¶¶ 14–16. Patent Owner "agrees that a person with a bachelor's degree in a relevant discipline, e.g., biology, chemical engineering, bioengineering or mechanical engineering related to medical devices, plus four years of work experience, would qualify as a person of ordinary skill in the art." PO Resp. 13. Patent Owner also contends that a person of ordinary skill would have had "experience in and an understanding of multiple areas, including hemostasis, blood coagulation pathway, and bioengineering or mechanical engineering related to medical devices." *Id.* Patent Owner, however, does not agree "that a person with an advanced degree, e.g., a PhD plus four years of work experience, would define a person of ordinary skill. That person is one of extraordinary skill." *Id.*

Based on the agreement between the parties, we find that a person of ordinary skill in the art would have had a bachelor's degree in a relevant

discipline, e.g., biology, chemical engineering, bioengineering, or mechanical engineering, related to medical devices, plus four years of work experience in areas relating to hemostasis, the blood coagulation pathway, and medical devices for evaluating hemostasis. Pet. 7–8; PO Resp. 13. This level of ordinary skill is reflected by the prior art of record. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art itself can reflect the appropriate level of ordinary skill in the art).

III. ANALYSIS

A. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction[1] in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b) (2016). Unless a special definition for a claim term is set forth in the specification, claim terms are given their ordinary and customary meaning as would be understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Petitioner proposes a specific construction for the following four claim terms under the broadest reasonable interpretation standard: (1) "test

[1] The Office recently changed the claim construction standard applicable to an *inter partes* review. *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (to be codified at 37 C.F.R. pt. 42). The rule changing the claim construction standard, however, does not apply to this proceeding because Petitioner filed its Petition before the effective date of the final rule, i.e., November 13, 2018. *Id.* at 51,340 (rule effective date and applicability date), 51,344 (explaining how the Office will implement the rule).

chamber configured to receive blood of a test sample," (2) "configured to be interrogated to determine a hemostatic parameter of the blood," (3) "activator of coagulation," and (4) "a first chamber of the plurality comprising a first reagent of a first combination of reagents" and "a second chamber of the plurality comprising a second combination of reagents." Pet. 8–11. In the Patent Owner Preliminary Response, Patent Owner proposed constructions for "configured to be interrogated to determine a hemostatic parameter of the blood" and "activator of coagulation." Prelim. Resp. 5–7. In the Institution Decision, we determined that no express claim construction was necessary. Inst. Dec. 4–5.

In its Patent Owner Response submitted after the Institution Decision, Patent Owner again[2] disputed Petitioner's proposed construction of "configured to be interrogated to determine a hemostatic parameter of the blood." PO Resp. 13–23. We, therefore, address the construction of this term. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) ("[W]e need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy'. . . .") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

"configured to be interrogated to determine a hemostatic parameter of the blood"

The relevant difference between the parties' proposed constructions of this phrase centers on the meaning of the term "hemostatic parameter."[3] Whereas Petitioner did not expressly construe "hemostatic parameter" in the

[2] In the Patent Owner Response, Patent Owner offered a different construction than the one it proposed in the Preliminary Response. *Compare* PO Resp. 14, *with* Prelim. Resp. 5.

Petition (Pet. 10–11), Patent Owner argues that we should construe the term to mean "a measurement that relies upon multiple components of hemostasis" (PO Resp. 14).

Patent Owner argues that a hemostatic parameter "must be a parameter used in determining a blood sample's ability to undergo hemostasis." *Id.* at 18. Patent Owner notes that the parties agree that hemostasis is a multi-component, multi-step process that causes bleeding from a damaged blood vessel to slow and stop. *Id.* (citing Ex. 1003 ¶ 18; Ex. 2005 ¶ 68). Therefore, "[a]s hemostasis is a multi-component, multi-step process, to evaluate hemostasis in a subject one must model the combined effects of the multiple components of hemostasis." *Id.* at 17–18 (citing Ex. 2005 ¶ 68). Patent Owner thus contends that a "hemostatic parameter" is "a measurement that relies upon multiple components of hemostasis." *Id.* at 17.

Patent Owner further contends that this construction is consistent with the disclosure in the '280 patent Specification. *Id.* at 18–19. In particular, Patent Owner argues:

> Particular hemostasis parameters disclosed in the '280 patent include TC1, TC2, clot stiffness, clot formation rate (CFR), TL1, and TL2. Ex. 1001, 2:56-58. Each of these parameters allows for an assessment of the hemostasis process because

[3] The parties also offer different interpretations of the term "configured to." Petitioner contends the term means "capable of" (Pet. 10 (citing Ex. 1003 ¶¶ 67–68)), whereas Patent Owner contends the term should be construed more narrowly as meaning "designed to" (PO Resp. 15–16). In view of Patent Owner's substantive arguments, however, we do not need to resolve this controversy for purposes of this Decision. *See, e.g.*, *id.* at 29–30 (acknowledging that Baugh is configured to measure platelet activation, but arguing that platelet activation is not a hemostatic parameter).

> each provides an understanding of ***the combined effect of multiple components of hemostasis***. Ex. 2005, ¶ 70. Immediately following the examples of parameters of hemostasis, the patent teaches that the device of the patent may generate other measurements stating that "[t]he disclosed methods can further include determining" several other factors (referred to as hemostatic indices) that provide insight into individual components or steps within hemostasis. Ex. 1001, 3:8-11; Ex. 2005, ¶ 71.

PO Resp. 19. Patent Owner contends that the Specification consistently distinguishes between hemostatic *parameters*, which characterize hemostasis by looking at multiple components of hemostasis, and *indices* of hemostasis, which isolate a single component of hemostasis. *Id.* at 20 (comparing Ex. 1001, 18:6–11 with 18:27–42); *see also id.* at 21 (arguing that the distinction between hemostatic parameters and hemostatic indices is "neither arbitrary nor without importance").

Petitioner contends that Patent Owner is impermissibly attempting to rewrite the claim language, noting that Patent Owner "dispenses with the central claim terms 'interrogate' and 'parameter' and introduces new concepts of 'multiple components' and 'reli[ance]' on such components." Reply 5–6. Petitioner argues that Patent Owner does not show why the Board should not apply the plain meaning of the claim language as the broadest reasonable interpretation. *Id.* at 7. Petitioner further contends that Patent Owner's construction is inconsistent with the '280 patent Specification. *Id.* at 8–9.

Patent Owner's proposed construction is based on the purported distinction in the Specification between hemostatic *parameters* and hemostatic *indices*. The Specification, however, does not include explicit definitions of either term. Further, the use of these terms in the Specification

indicates at least some overlap between indices and parameters. For example, in the section titled "Estimate Indices of Hemostatic Function," the Specification discusses how to calculate TC1, TC2, S, CFR, TL1, and TL2, which are referred to as "parameters." Ex. 1001, 15:5–40. In fact, Patent Owner acknowledges that "the specification confuses the terminology by using the term 'indices of hemostasis' when discussing measurement that the specification repeatedly identifies as hemostatic parameters." PO Resp. 20, n.8; Hearing Tr., 38:7–39:23 (counsel for Patent Owner acknowledging that "the patent isn't the picture of clarity on this" and "there are some times where the patent does seem to confuse the two"). Accordingly, the evidence of record does not support Patent Owner's assertion that the Specification draws a distinction between *parameters* that characterize hemostasis by looking at multiple components of hemostasis and *indices* of hemostasis, which isolate a single component of hemostasis. PO Resp. 20–21.

In view of this, we decline to adopt Patent Owner's construction. Instead, we adopt the plain and ordinary meaning of a "hemostatic parameter," which is "a parameter used in measuring a blood sample's ability to undergo hemostasis." PO Resp. 18; *see also* Reply 7–8 (discussing the importance of understanding "the effects or shortfalls of particular processes" and defining "parameter" as "any of a set of physical properties whose values determine the characteristics or behavior of something").

For all of the foregoing reasons, we find that the broadest reasonable interpretation of the term "configured to be interrogated to determine a hemostatic parameter of the blood" is "configured to be interrogated to determine a parameter used in measuring a blood sample's ability to undergo hemostasis."

B. References

i. Baugh (Ex. 1005)

Baugh is directed to an improved method for measuring the effectiveness of antiplatelet reagents or platelet inhibitors on the coagulation of blood. Ex. 1005, 3:47–50. Baugh's method includes

> placing a predetermined amount of heparin in each cell of a multicell test cartridge, placing an optimized amount of a mechanical platelet and/or clotting activator in each cell, and placing a measured amount of platelet inhibitor in each cell, the amount of inhibitor in each cell differing from the amount in each other cell. An aliquot of a blood sample is added to each cell, and the blood sample aliquot, platelet and/or clotting activator and platelet inhibitor are mixed. Each cell sample is allowed to clot, and the clotting time for each cell is measured. The relative clotting times are used to calculate and determine the platelet inhibition effect of the platelet inhibitor.

Id. at 4:1–13. Baugh discloses abciximab as an example of a platelet inhibitor that can be used to evaluate the function of platelets in the blood sample tested. *Id.* at 5:26–40.

ii. Schubert (Ex. 1006)

Schubert is directed to "a cartridge device for a measuring system for measuring viscoelastic characteristics of a sample liquid, in particular a blood sample." Ex. 1006 ¶ 25. Schubert discloses using its cartridge device and measuring system to measure characteristics such as coagulation or platelet function of a sample liquid. *Id.* ¶ 78. Schubert's cartridge device includes a receiving cavity for receiving the sample liquid and a reagent cavity for storing a reagent that is mixed with the sample liquid. *Id.* ¶¶ 78–79. Schubert discloses an embodiment of its cartridge device having four measurement cavities. *Id.* ¶¶ 81–82. With regard to blood coagulation, Schubert teaches that

> there are different reagents available which activate or suppress different parts of the coagulation cascade. Pentapharm GmbH (Munich, Germany) for example amongst others provide tests for intrinsic and extrinsic activation of a blood sample (INTEM or EXTEM respectively), and also a test for extrinsic activation in which the thrombocyte function is suppressed by administration of cytochalasin D (FIBTEM). It is state of the art that it is possible by wise combination of such tests to be able to determine very precisely at which point within the coagulation cascade a problem occurs. . . . It is also possible to combine e.g. an INTEM, an EXTEM and a FIBTEM coagulation test with a platelet aggregometry test within one cartridge.

Id. ¶ 83.

C. Challenges Based on Baugh

Petitioner argues that Baugh anticipates claims 1 and 2 of the '280 patent. Pet. 12–17. Petitioner provides a claim chart and relies on the declaration of Patrick Mize, Ph.D. ("the Mize Declaration," Ex. 1003) to demonstrate how and where Baugh discloses all of the limitations recited in claims 1 and 2. Pet. 12–17.

Claim 1 requires "[a] device for evaluation of hemostasis, comprising: a plurality of test chambers each configured to receive blood of a test sample." Petitioner contends Baugh discloses this limitation through its disclosure of "measuring and determining the effectiveness of antiplatelet reagents or platelet function inhibitors in the coagulation of blood" using a cartridge that includes a "plurality of test cells," wherein "(a)n aliquot of a blood sample is added to each cell." Pet. 13–14 (quoting Ex. 1005, 1:14–20, 2:2–7, 4:7–8, 4:42–47).[4]

[4] Petitioner acknowledges that the original citations to Baugh in the Petition were incorrect, and provides a chart listing the original incorrect citations in the Petition and corresponding corrected citations. Ex. 1012. For purposes

Petitioner further notes that Baugh includes "a reagent chamber which contains a reagent or reagents" (*id.* at 14–15 (citing Ex. 1005, 2:2–25, 7:21–25)), and thus discloses the claim 1 requirement of "each test chamber comprising a reagent or combination of reagents."

Claim 1 further recites "a first chamber of the plurality comprising a first reagent or a first combination of reagents that interact with the blood received therein, wherein the first reagent, or a reagent included in the first combination of reagents, is an activator of coagulation." For this limitation, Petitioner directs us to the portion of Baugh that teaches using "an activation reagent to activate coagulation of the blood." *Id.* at 15–16 (citing Ex. 1005, 2:2–7).

Petitioner also contends that Baugh discloses using abciximab in addition to an activator of coagulation in certain test cells, and therefore satisfies the claim 1 requirement of having "a second chamber of the plurality comprising a second combination of reagents that interact with blood of the test sample received therein, the combination including an activator of coagulation and one or both of abciximab and cytochalasin D." *Id.* at 16–17 (citing Ex. 1005, 5:33–43, 6:34–36).

Claim 2 depends from claim 1 and further requires that the first and second chambers comprise a combination of reagents including one or more of kaolin, celite, glass, thrombin, ellagic acid, and tissue factor. Petitioner asserts that Baugh satisfies this limitation by teaching that suitable activators include kaolin, powdered glass, and silica. Pet. 17 (citing Ex. 1005, 6:1–17).

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of this Decision, we refer only to Petitioner's corrected citations provided in Exhibit 1012.

Having reviewed the cited evidence, and the record as a whole, we find that Petitioner has accurately described the above-stated disclosures of Baugh and, therefore, we agree with, and adopt, Petitioner's contentions that Baugh discloses the aforementioned limitations in claims 1 and 2. Patent Owner does not challenge these contentions. Rather, Patent Owner disputes only Petitioner's assertion that Baugh discloses a device "wherein each chamber is configured to be interrogated to determine a hemostatic parameter," which we discuss below.

Petitioner contends that Baugh's test cells are "structurally capable of being interrogated to determine a hemostatic parameter" because Baugh teaches "mechanical activation of platelets using a plunger assembly 72 in order to detect coagulation." Pet. 14 (citing Ex. 1001, 7:21–25). Petitioner further contends Baugh discloses an "optical sensing system which 'senses the physical descent of the plunger assembly 72 through the blood sample and reagent mixture in the reaction chamber 94 in order to detect coagulation condition.'" *Id.* at 15 (citing Ex. 1001, 8:27–31).

Petitioner contends that Baugh's measurements of platelet activation and aggregation, which Patent Owner agrees are components of hemostasis, constitute the determination of a hemostatic parameter under the broadest reasonable interpretation of that term. Reply 1–2, 5 ("There is no dispute that Baugh is adapted to examine the platelet activation and aggregation aspect of hemostasis process that may be considered a 'component' of the process."); PO Resp. 2. Petitioner contends that "an important use of blood coagulation assays like those of Baugh and the '280 patent is understanding of the effects or shortfalls of particular processes." Reply 7 (citing Ex. 1001, 1:31–32). Petitioner thus argues that Baugh's interrogation of platelet

aggregation constitutes determining a parameter of hemostasis because Baugh "determine[s] a characteristic or behavior of that process, which may be a valuable quantification of 'dysfunction.'" *Id.* at 8.

Patent Owner argues that Baugh does not disclose a chamber "configured to be interrogated to determine a hemostatic parameter" because

> [c]onfiguration of the chambers within the device to interrogate a sample to determine a hemostatic parameter requires designing the chambers to provide measurements that rely upon multiple components of hemostasis, e.g., activation and adhesion of platelets, thrombin production, and fibrin polymerization. That is not the case with the device of Baugh, and this is evident throughout the description in Baugh.

PO Resp. 24; *see also id.* at 2 ("[T]he Baugh device measures one component of hemostasis, but not a hemostatic parameter."). More specifically, Patent Owner contends Baugh discloses determining platelet activation, which "is a component of hemostasis but does not allow assessment of the overall process of hemostasis." *Id.* at 30. As evidence of this, Patent Owner notes that, in order to isolate and assess platelet activity, Baugh includes an anticoagulant (e.g., heparin) in its chambers to inhibit hemostasis. *Id.* at 26.

Patent Owner's argument that Baugh fails to disclose a chamber "configured to be interrogated to determine a hemostatic parameter" is based on its proposed claim construction of the claim term, which requires measuring multiple components of hemostasis. For the reasons discussed above, we decline to adopt Patent Owner's proposed construction. Instead, we determined that "configured to be interrogated to determine a hemostatic parameter of the blood" means "configured to be interrogated to determine a parameter used in measuring a blood sample's ability to undergo

hemostasis." Patent Owner does not dispute that Baugh discloses chambers "configured to be interrogated to determine a hemostatic parameter of the blood" under the plain and ordinary meaning of the claim language, as proposed by Petitioner.

Indeed, Patent Owner acknowledges that platelet activation and aggregation are components of hemostasis. PO Resp. 28, 30; Ex. 2005 ¶ 63 ("A person of ordinary skill in the art would understand that hemostasis is a physiologic process during which blood clots and stops bleeding from a damaged vessel through pertinent biology, *including platelet activation and aggregation*, thrombin production, fibrin formation and polymerization, and fibrin clot formation.") (emphasis added). Further, Patent Owner states that Baugh assesses platelet activity by "measur[ing] viscosity changes of the sample after the activation of platelets," noting that, upon activation, platelets aggregate, which leads to an increase in viscosity of the test samples. PO Resp. 28–29. Moreover, the evidence of record demonstrates that platelet aggregation tests were known in the art to be a way of measuring a blood sample's ability to undergo hemostasis. *See, e.g.*, Ex. 2005 ¶ 42; Ex. 1005, 1:29–2:3. For example, in the background section of the '280 patent, platelet aggregation assays are listed as an example of existing in vitro diagnostic (IVD) tests, and IVDs are described as being "critically needed to quantify hemostatic dysfunction and direct appropriate treatment." Ex. 1005, 1:35–42.

In view of the foregoing, we find that Baugh's studies of platelet activity constitute measuring a blood sample's ability to undergo hemostasis. Accordingly, we find that Baugh's testing device is "configured to be

interrogated to determine a hemostatic parameter of the blood," as required by claim 1.

Based on the information and arguments presented, we find Petitioner explains sufficiently how and where Baugh discloses each limitation of claims 1 and 2. We, therefore, find that Petitioner has demonstrated, by a preponderance of evidence, that Baugh anticipates claims 1 and 2 of the '280 patent.

D. Challenges Based on Schubert

Petitioner argues that Schubert anticipates claims 1 and 2 of the '280 patent. Pet. 18–24. Petitioner provides a claim chart and relies on the Mize Declaration (Ex. 1003) to demonstrate how and where Schubert discloses all of the limitations recited in claims 1 and 2.

Petitioner contends Schubert discloses "a cartridge device for a measuring system for measuring viscoelastic characteristics of a sample liquid, in particular a blood sample." *Id.* at 19 (quoting Ex. 1006, Abstract, ¶¶ 2–7, 25). Petitioner notes that Schubert states that its cartridge device has "at least one measurement cavity," and discloses embodiments wherein the cartridge device has four measurement cavities and the sample liquid is shared among the cavities. *Id.* at 19–20 (citing Ex. 1006 ¶¶ 19, 8). Petitioner thus argues that Schubert teaches "[a] device for evaluation of hemostasis comprising a plurality of test chambers, each configured to receive blood of a test sample" as required by claim 1. *Id.*

Claim 1 further recites "each test chamber comprising a reagent or combination of reagents." With regard to this limitation, Petitioner directs us to Schubert's discussion of certain embodiments wherein "at least one reagent cavity is integrally formed . . . with the at least one measurement

cavity," as well as Schubert's discussion of reagents that can activate or suppress different parts of the coagulation cascade. *Id.* at 20 (citing Ex. 1006 ¶¶ 40, 83).

Petitioner notes that Schubert teaches each cartridge has "at least one probe element arranged in at least one measurement cavity for performing a test on said sample liquid" to measure a viscoelastic property of the sample liquid. *Id.* at 21 (citing Ex. 1006 ¶¶ 29, 88 ("FIG. 7c shows the sample liquid 1, which has been pumped into the measurement cavity 20. The probe pin 3 of the probe element 22 is immersed in the sample liquid 1.")). Petitioner contends this disclosure corresponds to the claim 1 requirement wherein "each chamber is configured to be interrogated to determine a hemostatic parameter of the blood received therein." *Id.*

Claim 1 further requires "a first chamber of the plurality comprising a first reagent or a first combination of reagents that interact with the blood received therein, wherein the first reagent, or a reagent included in the first combination of reagents, is an activator of coagulation." Petitioner argues that Schubert "provides examples of different reagents that can be included for performing different assays," including reagents "which activate . . . different parts of the coagulation cascade." *Id.* at 21–22 (citing Ex. 1006 ¶ 83). Petitioner also directs us to Schubert's disclosure of "tests for intrinsic and extrinsic activation of a blood sample (INTEM™ or EXTEM™ assays, respectively), and also a test for extrinsic activation in which the thrombocyte function is suppressed by administration of cytochalasin D (FIBTEM™)." *Id.* at 22 (citing Ex. 1006 ¶ 83). Petitioner asserts that these tests were well known in the art prior to the priority date of the '280 patent, and that a person of ordinary skill in the art would have known that they

include coagulation activators. *Id.* (citing Ex. 1003 ¶ 39). Petitioner thus contends that Schubert "includes teachings that a first measurement cavity in a plurality of measurement cavities can include reagents which 'activate different parts of the coagulation cascade' such as intrinsic or extrinsic activators (as would be used in the INTEM™ and EXTEM™ assays, respectively)." *Id.* (citing Ex. 1003 ¶ 39).

Petitioner relies on Schubert's disclosure of "a test for extrinsic activation in which the thrombocyte function is suppressed by administration of cytochalasin D (FIBTEM™)" to demonstrate that Schubert teaches using cytochalasin D in addition to an activator in certain test cells. *Id.* at 22–24 (asserting "a second measurement cavity can include an extrinsic activator in combination with cytochalasin D reagents (as would be used in the FIBTEM™ assay[)]") (citing Ex. 1006 ¶¶ 82–83; Ex. 1003 ¶ 39). Petitioner therefore argues that Schubert discloses the claim 1 requirement of having "a second chamber . . . comprising a second combination of reagents that interact with blood of the test sample received therein, the combination including an activator of coagulation and one or both of abciximab and cytochalasin D." *Id.* (citing Ex. 1006 ¶ 83).

In the Institution Decision, based on arguments presented in Patent Owner's Preliminary Response, we determined that Petitioner failed to demonstrate sufficiently where Schubert discloses the use of activators of coagulation as a reagent. Specifically, we stated:

> Although Schubert does disclose that activators of coagulation exist and characterizes the INTEM, EXTEM, and FIBTEM tests as tests for intrinsic and extrinsic activation, as Patent Owner points out, Schubert never explicitly states that these tests use, as a reagent, activators of coagulation. *See* Ex. 1006 ¶ 83.

> Further, Petitioner does not provide any citation in the Petition to support the assertion that "the EXTEM™ assay includes an extrinsic activator (such as tissue factor) while the FIBTEM™ assay includes an extrinsic activator in combination with cytochalasin D." Pet. 18. Dr. Mize testifies that these assays use coagulation activators, but fails to disclose the underlying facts or data upon which this testimony is based. Ex. 1003 ¶ 39 n. xxiv (p. 61). We therefore find that such testimony is conclusory, and is entitled to little or no weight. *See* 37 C.F.R. § 42.65(a).

Inst. Dec. 11.

We, therefore, determined that the record at that time failed to establish a reasonable likelihood that Petitioner would prevail on its assertion that Schubert anticipates claims 1 and 2 of the '280 patent, and declined to include this ground in the *inter partes* proceeding. *Id.* at 11–12. Because it was not part of the trial at the time Patent Owner's Response was due, Patent Owner did not address this challenge in its Patent Owner Response filed December 1, 2017.

On April 26, 2018, after the Supreme Court's decision in *SAS Institute, Inc. v. Iancu*, 138 S. Ct. 1348 (2018), we amended our Institution Decision to include this ground. Paper 26. Subsequently, we offered Patent Owner an opportunity to file a supplemental Patent Owner Response to address Petitioner's grounds based on Schubert, but Patent Owner indicated it did not wish to do so. Ex. 1064, 10:6–12. Petitioner filed a Supplemental Reply addressing our preliminary determinations in the Institution Decision regarding Schubert. In its Supplemental Reply, Petitioner argues:

> The Petition quotes and cites to paragraph 0083 of [Schubert] where consecutive sentences state that (i) "there are different reagents available which activate or suppress different parts of the coagulation cascade" and (ii) Pentaphar[m] GmbH provides tests "for intrinsic and extrinsic activation of a blood

> sample (INTEM™ or EXTEM™ respectively), and also "for extrinsic activation in which the thrombocyte function is suppressed by administration of cytochalasin D (FIBTEM™)."

Suppl. Reply 2. Petitioner again contends that a person of ordinary skill in the art would have understood these sentences in Schubert to teach that INTEM and EXTEM include reagents, which activate different parts of the coagulation cascade. *Id.* at 3 (citing Ex. 1003, p. 52; *In re Preda,* 401 F.2d 825, 826 (CCPA 1968) ("[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.")). Petitioner further argues that Patent Owner did not contradict Dr. Mize's testimony that INTEM, EXTEM, and FIBTEM are assays with known meanings to a person of ordinary skill in the art, and that the EXTEM assay includes Tissue Factor, the INTEM assay includes ellagic acid plus phospholipid, and the FIBTEM assay incudes Tissue Factor and cytochalasin D. *Id.* at 4–5 (citing Ex. 1003, pp. 19–20, 49, 61).

On July 11, 2018, we granted Petitioner's Motion to Submit Supplemental Information, allowing three exhibits into the record. Paper 36. These exhibits include U.S. Patent No. 9,915,671 B2 ("the '671 patent," Ex. 1067) and statements by Patent Owner and Patent Owner's Declarant, Dr. Diamond, regarding a particular portion of the '671 patent (Exs. 1065 and 1066, respectively). These statements appear in a petition (Ex. 1065) and supporting declaration (Ex. 1066) filed in connection with IPR2018-00950 challenging claims of the '671 patent.

The '671 patent is a continuation of Schubert and, like Schubert, is directed to "a cartridge device for a measuring system for measuring viscoelastic characteristics of a sample liquid." Ex. 1067, 1:38–40; *see also*

id. at [63] (claiming priority through continuation applications back to Application No. 12/640, 376, which is the application number listed on Schubert). The paragraph spanning lines 18 through 55 of column 9 of the '671 patent is identical to paragraph 83 of Schubert. *Compare* Ex. 1067, 9:18–55, *with* Ex. 1006 ¶ 83. As discussed above, this paragraph includes the statement that "there are different reagents available which activate or suppress different parts of the coagulation cascade," and discusses the INTEM, EXTEM, and FIBTEM tests. Ex. 1067, 9:18–55; Ex. 1006 ¶ 83.

In IPR2018-00950, referring to the '671 patent, Patent Owner states "[t]he patent discloses incorporating several existing blood coagulation reagent compositions into the cartridge. [Ex. 1067], 9:18-55. These reagents include compounds that activate blood coagulation through the intrinsic pathway (INTEM) and extrinsic pathway (EXTEM), and compounds that suppress thrombocyte (a.k.a. platelet) function (FIBTEM). *Id.*, 9:18-55." Ex. 1065, 9.[5] Dr. Diamond states "[t]issue factor is an activator of the extrinsic coagulation pathway," and cites to column 9, lines 18 through 25 of the '671 patent to support this statement. Ex. 1066, 50–51. Dr. Diamond also states that the '671 patent "acknowledg[es] that EXTEM is an extrinsic activator of coagulation" (*id.* at 51 (citing Ex. 1067, 9:18–25)) and "acknowledg[es] INTEM as an intrinsic activator of coagulation assay" (*id.* at 56 (citing Ex. 1067, 9:20–25)).

The statements by Patent Owner and Dr. Diamond are consistent with those made by Petitioner and Dr. Mize, namely, that the language in paragraph 83 of Schubert (which is identical to the language in column 9,

[5] For Exhibits 1065 and 1066, we refer to the page numbers printed at the bottom, center of each page.

lines 18 through 55 of '671 patent) discloses the use of coagulation activators among the reagents in the chambers of Schubert's device. For example, both Patent Owner and Petitioner state that EXTEM and FIBTEM tests include compounds that activate blood coagulation. Pet. 18; Ex. 1065, 9. Similarly, both Dr. Mize and Dr. Diamond state that tissue factor is an activator of the extrinsic coagulation pathway, and conclude that EXTEM includes an extrinsic activator of coagulation. Ex. 1066, 50–51; Ex. 1003 ¶ 39, n. xxiv (p. 61) ("The EXTEM™ assay includes an extrinsic activator (Tissue Factor) as a reagent . . . ."). Thus, although Schubert may not expressly state that EXTEM, INTEM, and FIBTEM include coagulation activators, it is undisputed that a person of ordinary skill in the art would have understood that these tests include coagulation activators. *In re Preda*, 401 F.2d at 826.

In view of the foregoing, after considering the full record, we agree with Petitioner that Schubert, through its discussion of EXTEM and FIBTEM tests in paragraph 83, discloses the use of activators of coagulation as a reagent in first and second chambers.

Having reviewed the cited evidence, and the record as a whole, we find that Petitioner has accurately described the disclosures of Schubert, and, therefore, we agree with, and adopt, Petitioner's contentions that Schubert discloses the aforementioned limitations in claim 1. As noted above, Patent Owner did not address Petitioner's arguments regarding Schubert in its Patent Owner Response, and chose not to file a supplemental response. We, therefore, find that Petitioner has demonstrated, by a preponderance of evidence, that Schubert anticipates claim 1 of the '280 patent.

Claim 2 depends from claim 1 and further requires that the first *and second* chambers comprise a combination of reagents including one or more of kaolin, celite, glass, thrombin, ellagic acid, and tissue factor. Petitioner, however, only addresses whether the first chamber comprises a first combination of reactants including one or more of these compounds. Pet. 24. Petitioner never argues or presents evidence demonstrating sufficiently that Schubert discloses a second chamber comprising a second combination of reagents including one or more of the aforementioned compounds. *Id.* In view of Petitioner's failure to address all of the limitations in claim 2, we find that Petitioner has not demonstrated, by a preponderance of evidence, that Schubert anticipates claim 2 of the '280 patent.

IV. CONCLUSION

For all of the foregoing reasons, we conclude, based on the record as a whole, that Petitioner has demonstrated by a preponderance of evidence that claims 1 and 2 of the '280 patent are unpatentable.

V. ORDER

For the reasons given, it is hereby

ORDERED that claims 1 and 2 of the '280 patent are held unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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