

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

TRANS OVA GENETICS, LC.  
Petitioner,

v.

XY, LLC  
Patent Owner.

---

Case IPR2018-00250  
Patent 8,652,769 B2

---

Before GRACE KARAFFA OBERMANN, ROBERT A. POLLOCK, and  
DAVID COTTA, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge*  
DAVID COTTA.

Opinion Dissenting filed by *Administrative Patent Judge*  
GRACE KARAFFA OBERMANN.

COTTA, *Administrative Patent Judge*.

DECISION  
Granting Institution of *Inter Partes* Review  
35 U.S.C. § 314

## I. INTRODUCTION

Trans Ova Genetics, LC. (“Petitioner” or “Trans Ova”) filed a Petition requesting an *inter partes* review of claims 1–16 of U.S. Patent No. 8,652,769 B2 (Ex. 1001, “the ’769 patent”).<sup>1</sup> Paper 2 (“Pet.”). XY, LLC (“Patent Owner” or “XY”) filed a Preliminary Response to the Petition. Paper 6 (Prelim. Resp.).<sup>2</sup>

Institution of an *inter partes* review is authorized by statute only when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314; *see* 37 C.F.R. § 42.4. Upon considering the Petition, the Preliminary Response, and the cited evidence, we conclude that Petitioner has satisfied the burden under 35 U.S.C. § 314(a) to show that there is a reasonable likelihood that it would prevail with respect to at least one of the challenged claims.

### A. *Related Proceedings*

Petitioner and Patent Owner identify *XY, LLC et al. v. Trans Ova Genetics, LC*, Case No. 1:17-cv-00944 (D. Colo.) as relating to the ’769 patent. Pet. 2; Paper 3, 2.

### B. *The ’769 Patent (Ex. 1001)*

The ’769 patent issued February 18, 2014, identifying George E. Seidel, Tae Kwang Suh, Kehuan Lu, and David G. Cran as co-inventors. Ex. 1001. The patent discloses “[e]ven though X-chromosome bearing spermatozoa and Y-chromosome bearing spermatozoa have been

---

<sup>1</sup> Petitioner identifies Intrexon Corporation as a real party in interest. Pet. 2.

<sup>2</sup> Patent Owner identifies Inguran, LLC as a real party in interest. Paper 3, 2.

differentiated by and separated based upon the difference in emitted fluorescence for many years . . . there remain significant problems yet to be resolved.” *Id.* at 1:54–61. One such problem is that separated X and Y chromosome bearing sperm populations may contain a “significant number of incorrectly separated spermatozoa that belong in the other population,” which may be attributed to “the lack of uniformity in the amount of fluorochrome bound to the spermatozoal DNA.” *Id.* at 1:65–2:2. Another problem identified by the ’769 patent is that “the amount of stain bound to the DNA” and the “amount of time that elapses during the staining of the DNA may [a]ffect the viability of the sperm resulting in lower fertilization rates” *Id.* at 2:18–28. A final problem identified by the ’769 patent is that “cryopreserved sperm may demonstrate increased capacitation, and the length of time such spermatozoa are viable may be shortened.” *Id.* at 2:40–42.

According to the Specification, “[t]he invention involves the substantially uniform binding of fluorochrome(s) to the DNA within mammalian spermatozoa (or sperm cells) allowing such labeled spermatozoa to be separated into high purity X-chromosome bearing and Y-chromosome bearing populations,” including “spermatozoa contained within previously frozen and then thawed semen.” Spec. 1:20–27.

### *C. Challenged Claims*

Petitioner challenges claims 1–16 of the ’769 patent. Claims 1 and 16, the only independent claims among the claims challenged in this proceeding, are reproduced below:

- 1.** A method of producing a frozen-thawed sorted artificial insemination sample comprising:

thawing frozen sperm cells;  
staining said thawed sperm cells with a concentration of a Hoechst 33342 greater than 40 micromolar;  
establishing the staining temperature between about 30° C. and about 40 C.°;  
determining a sex characteristic of said sperm cells;  
separating said sperm cells according to the determination of their sex characteristic;  
isolating sperm cells separated according to the determination of their sex characteristic in a collection element at a rate of greater than 1000 sperm per second for either X-chromosome bearing sperm or Y-chromosome bearing sperm;  
establishing a frozen-thawed sorted artificial insemination sample from said sperm cells isolated in said collection element;  
and  
fertilizing an egg with said frozen-thawed sorted artificial insemination sample at success levels of at least about 70% of the success levels with sperm cells that have not been separated and/or frozen.

**16.** A method of producing a frozen-thawed sorted sperm sample comprising:

thawing frozen sperm cells;  
staining said thawed sperm cells with a concentration of Hoechst 33342 greater than 40 micromolar for a period of time sufficient to achieve uniform staining;  
establishing the staining temperature between about 30°C. and about 40 C.°;  
determining a sex characteristic of said sperm cells;  
separating said sperm cells according to the determination of their sex characteristic;  
isolating sperm cells separated according to the determination of their sex characteristic in a collection element; and  
establishing a frozen-thawed sorted sperm sample from said sperm cells isolated in said collection element, the frozen-thawed sorted sperm sample being capable of fertilizing an egg at success levels of at least about 70% of the success levels with sperm cells that have not been separated and/or frozen.

Ex. 1001, 30:19–40 and 32:7–25.

*D. The Asserted Grounds of Unpatentability*

Petitioner challenges the patentability of claims 1–16 of the ’769 patent on the following grounds (Pet. 6):

<b>Ground</b>	<b>References</b>	<b>Basis</b>	<b>Claims Challenged</b>
1	Lu <sup>3</sup> and Johnson ’94 <sup>4</sup>	§ 103(a)	16
2	Lu and Rens <sup>5</sup>	§ 103(a)	1–5, 7–12, and 14–15
3	Lu, Rens, and Seidel <sup>6</sup>	§ 103(a)	6 and 13
4	Seidel, Lu, and Johnson ’94	§ 103(a)	16
5	Seidel, Lu, Johnson ’94, and Rens	§ 103(a)	1–15

Petitioner submits the Declarations of Johnathan H. Hartnett (Ex. 1002) and Dr. David J. Miller (Ex. 1003) in support of institution of *inter partes* review.

---

<sup>3</sup> Lu et al., *In Vitro Fertilization with Flow-Cytometrically-Sorted Bovine Sperm*, 52(8) THERIOGENOLOGY 1393–1405 (1999) (Ex. 1005, “Lu”).

<sup>4</sup> Johnson et al., *Recent Advances in Sex Preselection of Cattle: Flow Cytometric Sorting of X- & Y-Chromosome Bearing Sperm Based on DNA to Produce Progeny*, 41 THERIOGENOLOGY 51–56 (1994) (Ex. 1005, “Johnson ’94”)

<sup>5</sup> Rens et al., US Patent No. 5,985,216, issued Nov. 16, 1999 (Ex. 1007, “Rens”).

<sup>6</sup> Seidel et al., WO 99/33956, published July 8, 1999 (Ex. 1006, “Seidel”).

*E. Prosecution History*

We provide a discussion of the prosecution history of the '769 patent for context given that two of the prior art references asserted in this proceeding (Lu and Seidel) were analyzed by the Examiner.

The '769 patent issued from U.S. Application 12/853,196, which was filed on August 9, 2010. Following a preliminary amendment and election in response to a restriction requirement, claim 89, the only pending independent claim, recited a “method of producing a frozen-thawed sorted artificial insemination sample” that was “capable of fertilizing an egg.” Ex. 1018, 4. Dependent claim 90 further recited, “the frozen thawed sorted artificial insemination sample is capable of fertilizing at least one egg at success levels of at least about 70% of the success levels with sperm that had not been separated and/or frozen.” *Id.* at 4–5.

In an Office Action mailed August 15, 2011, the Examiner rejected the pending claims as obvious under 35 U.S.C. § 103(a) over the combination of Seidel and Lu. Ex. 1019, 10. With respect to the claimed 70% fertilization success rate, the Examiner found that neither Seidel nor Lu disclosed whether its sperm samples were capable of fertilizing an egg at the claimed success rate. *Id.* at 12. The Examiner found, however, that this limitation would be “inherent in [a] sample produced by the combined methods of the cited references which meet all of the claim limitation steps of Claim 89, and in light of the fact that the claims do not require the actual fertilization of any egg.” *Id.* The Examiner maintained this rationale in a subsequent Office Action mailed December 1, 2011. Ex. 1021, 5 (noting that claims 89 and 90 do not require that “fertilization of any egg actually take place” and explaining that “[t]he Examiner has interpreted the [70%

success limitation] as being inherent in any sample meeting the Claim limitations of Claim[] 90, steps a-h”).

On March 1, 2012, Patent Owner filed a Request for Continued Examination (“RCE”) and amended claims 89 and 90 to “affirmatively require the step of fertilizing an egg.” Ex. 1022, 9. Claim 90, as amended, thus required “fertilizing an egg with said frozen-thawed sorted artificial insemination sample at success levels of at least 70% of the success levels with sperm cells that have not been separated and/or frozen.” *Id.* at 3. As a result of this amendment, the Examiner withdrew the pending rejection of claim 90 as obvious over the combination of Seidel and Lu. Ex. 1023, 3.

The Examiner issued a Notice of Allowance on November 27, 2013 in which the Examiner indicated that the claims had been deemed allowable because neither Seidel nor Lu disclosed the claimed 70% fertilization success rate. Ex. 2025. The Examiner explained:

The following is an examiner’s statement of reasons for allowance: The closest prior art of record, Seidel . . . in view of Lu . . . teach a method of obtaining frozen sperm cells, thawing said cells, staining said cells with a fluorochrome, determining a sex characteristic of said cells, separating the cells according to the sex characteristic, establishing a frozen-thawed sorted artificial insemination sample from said separated cells, and artificially inseminating a female animal to produce an offspring of the desired sex, but do not teach that the fertilization of an egg with the frozen-thawed sorted artificial insemination sample in an artificial insemination procedure at success levels of at least about 70% of the success levels with sperm cells that have not been separated and/or frozen.

Further, the limitation of fertilization of an egg with the frozen-thawed sorted artificial insemination sample in an artificial insemination procedure at success levels of at least about 70% of the success levels with sperm cells that have not

been separated and/or frozen was the basis of novelty in the allowed Parent Application 11/536,576, now US 7,771,821 and Grand-Parent Application 10/433,183, now US 7,713,687.

*Id.* at 6–7 (emphasis added).

## II. ANALYSIS

### A. *Person of Ordinary Skill in the Art*

Factual indicators of the level of ordinary skill in the art include “the various prior art approaches employed, the types of problems encountered in the art, the rapidity with which innovations are made, the sophistication of the technology involved, and the educational background of those actively working in the field.” *Jacobson Bros., Inc. v. U.S.*, 512 F.2d 1065, 1071 (Ct. Cl. 1975); *see also Orthopedic Equip. Co., v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983) (quoting with approval *Jacobson Bros.*).

Petitioner contends that the person of ordinary skill is:

[s]omeone with at least a Bachelor of Science degree in the animal sciences or closely related discipline and at least 5 years of experience in one or more of the following areas: mammalian reproductive technologies, including egg fertilization techniques such as artificial insemination (“AI”) and *in vitro* fertilization (“IVF”); study of the various factors that affect fertilization success; handling of mammalian sperm, including cryopreservation, thawing, insemination, and fertilization; genetic, biological, and/or biochemical study of sperm; and the use of flow cytometric techniques to study and/or sort sperm.

Pet. 5. Patent Owner does not challenge Petitioner’s definition. *See generally*, Prelim. Resp. 1–17. The current record supports Petitioner’s description of the level of ordinary skill in the art. Accordingly, for purposes of this Decision, we adopt Petitioner’s description.



Moreover, we have reviewed Dr. Miller’s credentials (Ex. 1004) and, at this stage in the proceeding, we consider Dr. Miller to be qualified to provide an opinion on the level of skill and the knowledge of a person of ordinary skill in the art at the time of the invention.

*B. Claim Construction*

We interpret claims of an unexpired patent using the “broadest reasonable construction in light of the specification of the patent in which [they] appear[.]” 37 C.F.R. § 42.100(b); *see also* *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). Under that standard, we interpret claim terms using “the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant’s specification.” *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997). “Absent claim language carrying a narrow meaning, the PTO should only limit the claim based on the specification . . . when [it] expressly disclaim[s] the broader definition.” *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004).

Although Petitioner offers briefing regarding several claim terms (Pet. 18–26), at this stage of the proceeding, we determine that no explicit construction of any claim term is necessary to determine whether to institute a trial in this case. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 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))); *Wellman, Inc. v. Eastman Chem.*

*Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (“[C]laim terms need only be construed ‘to the extent necessary to resolve the controversy’”).

C. *Availability of Lu as Prior Art*

Lu is a journal article published in a 1999 volume of the journal *Theriogenology*. Ex. 1005. Petitioner asserts that Lu is a prior art printed publication under 35 U.S.C. § 102(a). Pet. 26–27. Patent Owner contends that Lu does not qualify as prior art because it is not the work of “another.” Prelim. Resp. 8–13.

Petitioner has the burden of persuasion to prove unpatentability by a preponderance of the evidence. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1379 (Fed. Cir. 2015). Petitioner also has the initial burden of production to show that a reference is prior art to certain claims under a relevant section of 35 U.S.C. § 102. *Id.* Once Petitioner has met that initial burden, the burden of production shifts to Patent Owner to argue or produce evidence that the asserted reference is not prior art to certain claims. *Id.* at 1380. Once Patent Owner has met that burden of production, the burden of production returns to the Petitioner. *Id.*

An inventor’s own work is not prior art under § 102(a). *See Allergan, Inc. v. Apotex Inc.*, 754 F.3d 952, 968 (Fed. Cir. 2014); *Katz*, 687 F.2d at 454. “The question of whether a reference is a work of others for the purposes of § 102(a) is, like that of inventorship, a question of law based on underlying facts.” *Allergan*, 754 F.3d at 969 (citing *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998)). In determining whether a reference is the work of the named inventor(s), the inquiry focuses on whether the relevant content of the reference – which includes “the design, trial, and analysis of results” – was solely the work of the

inventor(s). *See Allergan*, 754 F.3d at 969; *Riverwood Int’l Corp. v. R.A. Jones & Co.*, 324 F.3d 1346, 1356 (Fed. Cir. 2003) (“What is significant is not merely the differences in the listed inventors, but whether the portions of the reference relied on as prior art, and the subject matter of the claims in question, represent the work of a common inventive entity”).

Here, the current record tends to suggest that relevant portions of Lu are attributable to at least one individual who is not named as one of the four named inventors of the ’769 patent. The ’769 patent lists as inventors George E. Seidel, Tae Kwang Suh, Kehuan Lu, and David G. Cran, which arguably corresponds to Lu authors “K. H. Lu, D. G. Cran, and G. E. Seidel, Jr.” *Compare*. Ex. 1001, 1, *with* Ex. 1005, 1393. The title page of Lu further acknowledges that “D. Green (Cogent, UK) gave permission to cite unpublished work.” *Id.* D. Green’s work appears to be reflected at least in Lu Table 3 (reproduced below).

Table 3. Effect of stain concentration on cleavage and development rates of frozen-thawed, stained, sorted sperm (Green, et al., unpublished)

Bull	No. ejaculates	Hoechst 33342 conc. (µM)	Staining time required (min)	No. oocytes	% cleaved	% blastocysts/oocyte
1	3	224	190	368	44 <sup>a</sup>	17
1	3	2,240	60	373	60 <sup>b</sup>	23
2	1	224	190	86	23 <sup>a</sup>	0 <sup>a</sup>
2	1	2,240	60	81	42 <sup>b</sup>	16 <sup>b</sup>

<sup>a,b</sup> Percentages within bulls within columns with different superscripts differ ( $P < .025$ ,  $\chi^2$ ).

Ex. 1005, 1398 (emphasis added). Table 3 reports data regarding the effect of stain concentration. As can be seen, Lu expressly attributes the data in Table 3 to “Green, et al., unpublished.”<sup>7</sup>

<sup>7</sup> After Patent Owner filed a preliminary response challenging the prior art status of Lu, Petitioner requested leave to file a reply to Patent Owner’s Preliminary Response to call our attention to, *inter alia*, the attribution of relevant portions of Lu to D. Green and to pertinent case law. *See*, Ex. 3001.

The '769 patent incorporates Lu by reference (Ex. 1001, 9:7–16) and expressly reproduces Table 3 (*id.* at 9:56–10:13). The patent further discusses the experiment underlying Table 3 at column 9, lines 37–54.

Petitioner relies on the data in Table 3 as disclosing, in combination with the data in Lu's Table 1, the 70% success level recited in claim 1. Pet. 13, 33–37; *see also, infra* 16. As such, relevant portions of the Lu reference appear, on their face, to be the work of “Green et al.” Since the '769 patent does not identify anyone named “Green” as an inventor, this tends to show that relevant portions of Lu do not qualify as the inventor's own work under 35 U.S.C. § 102(a).

Patent Owner argues that “Petitioner has made no argument and provided no evidence that work described in the Lu Paper is the work of someone other than the '769 Patent's inventors.” Prelim. Resp. 9. We note, however, that in discussing the prosecution history of the '769 patent, Petitioner points out that the Examiner entertained obviousness rejections involving Lu, which Applicants overcame on the merits. Pet. 14–18. We infer from the cited prosecution history that, at a minimum, the Examiner considered Lu the work of another. *See, e.g.*, Ex. 1021, 7–11 (rejecting claims under § 103(a) over Seidel and Lu); Ex. 1022, 9–10 (responding to rejection on the merits); Ex. 1024, 7–8 (same). Moreover, on the existing record, Lu's attribution of Table 3 to “Green et al” is sufficient to show that Lu is prior art under 35 U.S.C. § 102(a). Put another way, Petitioner's production of a reference that, on its face, attributes relevant portions of that

---

We determined that further briefing was not necessary and note that the Lu's attribution of the data in Table 3 to “Green et al.” is clear on its face.

reference to a non-inventor is sufficient to meet Petitioner's burden of production under *Dynamic Drinkware*.

Patent Owner further argues that Lu represents the inventor's own work because the "article itself reflects that the portions of the Lu Paper relied on by Petitioner describe the work of joint inventors Lu, Cran, and Seidel." Prelim. Resp. 9. We are not persuaded because, as discussed above, Table 3 of Lu appears to be attributed to "Green et al." We note that at this point in the proceeding, Patent Owner's argument is not supported by testimonial evidence.<sup>8</sup> During trial, Patent Owner will have an opportunity to submit argument and evidence to show Lu represents the work of the inventors of the '769 patent. *See Varian Med. Sys., Inc. v. William Beaumont Hosp.*, IPR2016-00163, slip op. at 13–15 (PTAB May 6, 2016) (Paper 14) (finding that differences in inventive entities were sufficient to demonstrate that references relied upon by Petitioner were "by 'another'" for purposes of institution).

#### D. *Ground 1*

Petitioner asserts that claim 16 is rendered obvious by the combination of Lu and Johnson '94. Pet. 28–37. We have reviewed the information presented in the Petition and the Patent Owner's Preliminary Response and, for the reasons discussed below, we conclude that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that claim 16 would have been obvious over the combination of Lu and Johnson.

---

<sup>8</sup> During prosecution, Patent Owner noted that the inventors of the '769 patent overlap with the authors of Lu and asserted that it "may later file an attribution declaration or swear behind Lu et al. as may be appropriate." Ex. 1020, 9. Patent Owner ultimately opted not to do so.

*i. Disclosures of the Asserted Prior Art*

Lu

Lu discloses in vitro fertilization with flow-cytometrically sorted bovine sperm. Ex. 1005, title. Lu compares the fertilization and embryonic development of oocytes inseminated with sorted and unsorted fresh and frozen sperm. The results, derived from sperm obtained from 4 bulls (5 replicates per bull), are reported in Table 1 (reproduced below).

Table 1. Cleavage and embryonic development of oocytes inseminated with sorted and unsorted sperm

Sperm type	No. oocytes	No. cleaved (%)	No. blastocysts (%)
Sorted-fresh	792	523 (66) <sup>a</sup>	128 (16) <sup>a</sup>
Unsorted-fresh	721	544 (76) <sup>b</sup>	172 (24) <sup>b</sup>
Sorted-frozen	554	394 (71)	100 (18) <sup>a</sup>
Unsorted-frozen	566	423 (75)	140 (25) <sup>b</sup>

<sup>a,b</sup> Percentages within columns with different superscripts differ, (P<.01),  $\chi^2$ .

*Id.* at 1396. Table 1 reports the cleavage and embryonic development rates of oocytes inseminated with “sorted-fresh,” “unsorted-fresh,” “sorted-frozen,” and “unsorted-frozen” sperm. *Id.*

Lu also compares the fertilization and embryonic development of oocytes inseminated with frozen-thawed, sorted sperm stained with two different concentrations of Hoechst 33342. The results are reported in Table 3 (reproduced below).

Table 3. Effect of stain concentration on cleavage and development rates of frozen-thawed, stained, sorted sperm (Green, et al., unpublished)

Bull	No. ejaculates	Hoechst 33342 conc. ( $\mu$ M)	Staining time required (min)	No. oocytes	% cleaved	% blastocysts/oocyte
1	3	224	190	368	44 <sup>a</sup>	17
1	3	2,240	60	373	60 <sup>b</sup>	23
2	1	224	190	86	23 <sup>a</sup>	0 <sup>a</sup>
2	1	2,240	60	81	42 <sup>b</sup>	16 <sup>b</sup>

<sup>a,b</sup> Percentages within bulls within columns with different superscripts differ (P<.025,  $\chi^2$ ).

*Id.* at 1398. Table 3 reports the cleavage and embryonic development rates of oocytes inseminated with frozen-thawed, sorted sperm stained with 224  $\mu\text{M}$  and 2,240  $\mu\text{M}$  of Hoechst 33342 dye. *Id.*

Lu ultimately concludes that “[s]exed bovine sperm, whether frozen or unfrozen, can be used successfully in IVF systems.” *Id.* 1403.

#### Johnson ’94

Johnson discloses that “incubating sperm at 35 C with a vital fluorochrome (Hoechst 33342) to get uniform stain penetration” is “central” to the ability to “flow cytometrically” sort “viable and intact X or Y sperm” on the basis of DNA content. Ex. 1015, 52.

#### *ii. Analysis*

Petitioner contends that Lu “expressly discloses every element of claim 16, with the possible exception of the staining temperature (‘between about 30° and about 40° C’).” Pet. 28–29.

With respect to the limitation requiring a staining temperature “between about 30°C and about 40°C,” Petitioner notes that Lu discloses staining frozen-thawed sperm under “*standard* stain concentration and incubation temperature.” *Id.* at 30 (citing Ex. 1005, 1398). Petitioner, supported by testimony of Dr. Miller, asserts that a person of ordinary skill in the art would have understood the “standard” staining temperature to be “between 30°C to 40°C,” because “such was conventional when staining sperm with Hoechst 33342.” *Id.* at 30–31 (citing Ex. 1003 ¶¶ 90–93). Petitioner argues that Lu corroborates this by referencing studies in which sperm was stained with Hoechst 33342 at 35°C. *Id.* at 31 (citing Ex. 1005,

1394). In addition, Petitioner cites to Johnson '94's teaching that "one of the 'central' advances made in sex preselection of cattle using flow cytometric sorting was 'incubating sperm at 35 C with a vital fluorochrome (Hoechst 33342) to get uniform stain penetration.'" *Id.* (citing Ex. 1015, Abstract, 52).

With respect to the claim limitation requiring the "frozen-thawed sorted sperm sample being capable of fertilizing an egg at success levels of at least about 70% of the success levels with sperm cells that have not been separated and/or frozen," Petitioner contends that the data disclosed in Lu reflects the claimed success rate. Pet. 33–37. More specifically, Petitioner contends that the success rate of "frozen-thawed sorted sperm" relative to "sperm cells that have not been separated and/or frozen" can be "derived by dividing the blastocyst percentage of the frozen-thawed, sorted samples from [Lu's] Table 3 (17% and 23%, respectively)<sup>9</sup> by the blastocyst percentage of the two unfrozen samples (sorted and unsorted) from Table 1 (16% and 24%, respectively.)"<sup>10</sup> Pet. 35. Accordingly, Petitioner contends that Lu discloses at least a 71% success rate – i.e., 17% divided by 24%. *Id.* at 35–36; *see also* Ex. 1003 ¶¶ 101–06 (stating that Lu "expressly or implicitly discloses every element of claim 16").

---

<sup>9</sup> The samples from Lu's Table 3 were also stained, as is required by claim 16. *See* Ex. 1001, 32:10 (requiring "staining said thawed sperm cells").

<sup>10</sup> It is not clear to us why Petitioner relies on data for "sorted-fresh" sperm when the relevant comparison in claim 16 is to "sperm cells that have not been separated." For purposes of this decision, we do not rely on the 16% blastocyst formation rate for "sorted-fresh" sperm in calculating the claimed relative fertilization success rate.



Based upon our review of the information presented in the Petition and the Patent Owner's Preliminary Response, we find that Petitioner has shown sufficiently that there is a reasonable likelihood that it would prevail in showing the unpatentability of independent claim 16 over the combination of Johnson and Lu.

*iii. 35 U.S.C. § 325(d)*

We have discretion to deny review when “the same or substantially the same prior art or arguments previously were presented to the Office.” 35 C.F.R. § 325(d). When evaluating whether the same or substantially the same prior art or arguments were previously presented to the Office under § 325(d), the Board has considered a number of non-exclusive factors, including, for example: (1) the similarity of the asserted art and the prior art involved during the examination; (2) the extent to which the asserted art was considered during examination, including whether the prior art was the basis for rejection; (3) the cumulative nature of the asserted art and the prior art considered during examination; (4) whether Petitioner has pointed out sufficiently how the Examiner erred in its consideration of the asserted prior art; (5) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or the applicant's arguments during examination; and (6) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the asserted prior art. *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, Case IPR2017-01586, slip op. at 17–28 (PTAB Dec. 15, 2017) (Paper 8) (informative).

Patent Owner invites us to enter a discretionary denial under 35 C.F.R. § 325(d) because “the key references relied on by Petitioner – the Lu

Paper and the Seidel Application – were extensively considered by the Examiner during the original prosecution before allowing the challenged claims and issuing the [']769 Patent.” Prelim. Resp. 14. After considering the factors outlined in *Becton, Dickinson & Co.*, we are persuaded that the Petition presents a substantially different argument than was articulated by the Examiner and that the Examiner’s failure to appreciate the full scope of Lu’s disclosure warrants reconsideration of the asserted prior art.

We acknowledge that the Examiner considered the Lu and Seidel references during prosecution and, in fact, based multiple rejections on the combination of Lu and Seidel. *See supra* p. 6–8. However, in each of these rejections, the Examiner manifestly failed to appreciate that the claimed 70% fertilization success rate could be calculated by dividing the blastocyst percentage of the frozen-thawed, sorted samples from Lu’s Table 3 (17% and 23%, respectively) by the blastocyst percentage of unsorted unfrozen sperm in Lu’s Table 1 (24%). *See, e.g.*, Ex. 1019, 10–13; Ex. 1021, 7–11 (relying on inherency to establish the claimed 70% success rate); *see also, supra* p. 6–8 (discussing prosecution history); *and supra* p. 14 (discussing Lu’s disclosure of this limitation).

The Examiner’s Reasons for Allowance also reflect that the Examiner did not recognize that Lu expressly discloses data from which one of ordinary skill in the art can readily calculate the claimed 70% success rate. In the Reasons for Allowance, the Examiner explained that the claims were allowable because Seidel and Lu “do not teach that the fertilization of an egg with the frozen-thawed sorted artificial insemination sample in an artificial insemination procedure at success levels of at least about 70% of the success levels with sperm cells that have not been separated and/or frozen.”

Ex. 1025, 6. The Examiner also noted that the 70% success level “was the basis of novelty in the allowed Parent Application.” *Id.*

Applying the factors identified in *Becton, Dickinson & Co.*, to the case at hand, we find that factors 1–3 weigh in favor of exercising our discretion to deny institution. The art relied upon by the Petitioner is substantially the same as was cited by the Examiner and it was considered extensively during prosecution. However, these factors do not outweigh factors 4 and 5, which strongly favor institution of *inter partes* review. Petitioner provides substantial evidence indicating that the Examiner failed to appreciate the full scope of Lu’s disclosure, and that the Examiner’s appreciation of the reference was fundamental to the allowance of the present claims. *See* Ex. 1025. Moreover, the argument presented by the Petitioner — that Lu expressly discloses data from which one of ordinary skill in the art can calculate the claimed 70% success level — differs substantially from the inherency argument relied upon by the Examiner during prosecution. Accordingly, we decline to exercise our discretion to deny review under 35 U.S.C. § 325(d).

*iv. Grounds 2–5*

In determining whether Petitioner has satisfied the statutory threshold for institution under 35 U.S.C. § 314(a), we focused on claim 16 of the ’769 patent, because it is the broadest claim challenged in the petition. We have determined that the Petitioner has established a reasonable likelihood that it will prevail that at least claim 16 of the ’769 patent is unpatentable. The Supreme Court has determined that if an *inter partes* review is instituted under 35 U.S.C. § 318(a), such review must decide the patentability of all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348,

1359–60 (2018). As we have already determined that Ground 1 supports institution with respect to claim 16, we also institute *inter partes* review of claims 1–16 based on the arguments set forth in the Petition with respect to Grounds 2–5.

## II. CONCLUSION

For the foregoing reasons, we conclude that the information presented in the Petition establishes a reasonable likelihood that it will prevail that at least claim 16 of the '769 patent is unpatentable. Accordingly, we institute an *inter partes* review of all challenged claims and all ground presented in the Petition. *SAS Inst., Inc.*, 138 S. Ct. at 1359–60.

## III. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to claim 16 of the '769 patent under 35 U.S.C. § 103(a) as obvious over Lu and Johnson '94.

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to claims 1–5, 7–12, 14, and 15 of the '769 patent under 35 U.S.C. § 103(a) as obvious over Lu and Rens.

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to claims 6 and 13 of the '769 patent under 35 U.S.C. § 103(a) as obvious over Lu, Rens, and Seidel.

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to claim 16 of the '769 patent under 35 U.S.C. § 103(a) as obvious over Seidel, Lu, and Johnson.

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to claims 1–15 of the '769 patent under 35 U.S.C. § 103(a) as obvious over Seidel, Lu, Johnson, and Rens.

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial commencing on the entry date of this Decision.

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

TRANS OVA GENETICS, LC.  
Petitioner,

v.

XY, LLC  
Patent Owner.

---

Case IPR2018-00250  
Patent 8,652,769 B2

---

Before GRACE KARAFFA OBERMANN, ROBERT A. POLLOCK, and  
DAVID COTTA, *Administrative Patent Judges*.

OBERMANN, *Administrative Patent Judge*, dissenting.

The Petition asserts Lu as prior art in each stated ground of unpatentability. Pet. 4. I respectfully disagree with my colleagues' view that the Petition shows sufficiently that Lu qualifies as prior art. The Petition fails to make a threshold showing as to Lu's prior art status—a failure that is dispositive. *Id.* Accordingly, I would not institute review on

this record. *See* 35 U.S.C. § 314(a) (defining the scope of the Board’s authority to institute trial).

Here is the sum total of information presented in the Petition to show Lu’s prior art status: “Lu—which published 11 months before the ’769 patent’s earliest effective priority date”—is prior art “under pre-AIA 35 U.S.C. § 102(a).” Pet. 10, 26. But Lu lists as authors a subset of the same individuals named as co-inventors on the face of the ’769 patent. *Compare* Ex. 1005 (Lu, identifying Seidel, Lu, and Cran as authors), *with* Ex. 1001 (the ’769 patent, identifying Seidel, Suh, Lu, and Cran as inventors).

I submit that Petitioner, in the Petition, was required to raise that commonality, which represents a “material fact” pertaining to Lu’s prior art status. 37 C.F.R. § 42.22(a)(2) ([a] petition “must include” “a detailed explanation of the significance of the” “material facts,” “governing law,” and “precedent”).

The Petition also ignores “governing law” and “precedent” bearing on that “material” fact. *Id.* When an inventor publishes his or her own work, the governing law provides a one year grace period to file a patent application, without the prior publication qualifying as prior art. 35 U.S.C. § 102(b). Relevant precedent, further, instructs that the one year grace period applies where, as here, the information of record indicates that the prior publication is the work of a subset of the co-inventors of the patented invention. *Allergan*, 754 F.3d at 967–69 (Fed. Cir. 2014) (a publication of work attributable to a “co-inventor” (page 968) triggers the one year grace period); *cf.* MANUAL OF PATENT EXAMINING PROCEDURE § 2132.01 (9th Ed., Rev. 08.2017, Jan. 2018) (“An inventor’s *or at least one joint inventor’s disclosure* of his or her own work within the year before the application

filing date cannot be used against the application as prior art under pre-AIA 35 U.S.C. [§] 102(a)”) (emphasis added) (citing *In re Katz*, 687 F.2d 450, 454 (CCPA 1982)).

The Petition does not contest the accuracy of Lu’s author list or the challenged patent’s disclosure of inventors. *See* Pet. 10, 26–27 (totality of Petition argument on point). The Petition does not mention Green, much less advance argument that Green contributed to Lu’s work. *See id.* Against that backdrop, unsurprisingly, the Preliminary Response does not mention Green or recognize a need to defend against argument that Green is an unnamed contributor to Lu’s work. I would not reach outside the information advanced in the Petition and Preliminary Response to identify a triable issue of fact surrounding whether Green contributed to Lu’s work in a manner that qualifies Lu as prior art.<sup>1</sup> Ex. 1005, Title Page, Table 3.

Instituting trial to resolve an issue that neither party raises in the briefs frustrates the process, established by Congress and implemented by our rules, governing the conduct of our proceedings. 35 U.S.C. § 314(a) (authorizing trial institution only if “the information presented in the petition” “and any preliminary response filed” “shows that there is a reasonable likelihood that the petitioner would prevail” at trial); 37 C.F.R. § 42.108(c) (“review shall not be instituted” “unless the Board decides that

---

<sup>1</sup> Neither party raises information from which I reasonably can conclude that Green’s “unpublished” material (Ex. 1005, Table 3) was not supervised by Lu’s named authors or that Green was more than “a ‘pair of hands’ for the” patent’s inventors. *Allergan*, 754 F.3d at 969; *see Katz*, 687 F.2d at 455 (explaining the pertinent inquiry under Section 102(b)). The fact that Lu’s authors gratefully acknowledged Green, but did not name Green as a co-author of Lu’s work, in fact, cuts against that conclusion. Ex. 1005, Title Page (acknowledgements footnote).



the petition” shows “a reasonable likelihood that at least one of the claims challenged in the petition is unpatentable”).

After Patent Owner filed the Preliminary Response, Petitioner’s counsel raised Green for the first time; and then, only in an email containing content that exceeds the proper scope of a reply. *See* Ex. 3001 (email, raising new issues pertaining to, among other issues, whether Lu’s named authors are the same individuals identified as inventors in the ’769 patent, and whether Green is an unnamed contributor to Lu’s work); 37 C.F.R. § 42.23(b) (“[a] reply may only respond to arguments raised in the corresponding opposition”).

In that email, Petitioner’s counsel asserted—with little, if any, objective support (*see supra* n.1)—that Green contributed to Lu’s work in a manner that qualifies Lu as prior art. Ex. 3001. Counsel’s stated reason for submitting the email was to request Board approval to file a reply brief that would raise issues surrounding Green in this proceeding—a request that we expressly denied. *Id.* By denying Petitioner’s request to file a reply brief that would raise issues surrounding Green in this proceeding, we denied also Patent Owner of fair and timely notice regarding any need to pursue a sur-reply on those issues. Under the circumstances, I submit that instituting trial on issues surrounding Green is unfair to Patent Owner.

The email, made of record today, reads like an unauthorized reply brief. *See* Ex. 3001 (email, containing extensive argument of counsel that goes far beyond a simple request to file a reply brief). Patent Owner was given no notice that our institution decision would address, much less turn on, arguments advanced in that email. In my view, the challenge that forms the basis for trial institution should be evident from information raised in a

IPR2018-00250  
Patent 8,652,769 B2

brief of record. Based on the information presented in the Petition and Preliminary Response, I would not institute trial.

For the above reasons, I respectfully dissent.

IPR2018-00250  
Patent 8,652,769 B2

PETITIONER:

David Kelly  
Steven D. Shipe  
Gene J. Yao  
HUNTON & WILLIAMS LLP  
dkelly@hunton.com  
steven.shipe@btlaw.com  
gyao@hunton.com

PATENT OWNER:

Kirt O'Neill  
Daniel L. Moffett  
Andy Rosbrook  
Dorian Ojemen  
AKIN GUMP STRAUSS HAUER & FELD LLP  
[koneill@akingump.com](mailto:koneill@akingump.com)  
[dmoffett@akingump.com](mailto:dmoffett@akingump.com)  
[arosbrook@akingump.com](mailto:arosbrook@akingump.com)  
[dojemen@akingump.com](mailto:dojemen@akingump.com)