

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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THERMO FISHER SCIENTIFIC INC.,  
Petitioner,

v.

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA,  
Patent Owner.

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Case IPR2018-01347  
Patent 9,085,799 B2

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Before ERICA A. FRANKLIN, JAMES A. WORTH, and KRISTI L. R.  
SAWERT, *Administrative Patent Judges*.

SAWERT, *Administrative Patent Judge*.

DECISION  
Denying Institution of *Inter Partes* Review  
37 C.F.R. § 42.108

## I. INTRODUCTION

Thermo Fisher Scientific Inc. (“Petitioner”) filed a Petition for an *inter partes* review of claims 1, 3, 4, 6, and 7 of U.S. Patent No. 9,085,799 B2 (“the ’799 patent,” Ex. 1001). Paper 2 (“Pet.”). The Regents of the University of California (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Prelim. Resp.”).

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314(b); 37 C.F.R. § 42.4(a). We may not institute an *inter partes* review “unless . . . 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(a).

Applying those standards, and upon consideration of the information presented in the Petition and the Preliminary Response, we determine that Petitioner has not demonstrated a reasonable likelihood of success in proving that at least one claim of the ’799 patent is unpatentable. Accordingly, we do not institute an *inter partes* review of the challenged claims (1, 3, 4, 6, and 7) of the ’799 patent.

### A. Related Proceedings

Petitioner and Patent Owner identify *The Regents of the University of California v. Affymetrix, Inc.*, Case No. 3:17-cv-01394 (CASD) (“the district court litigation”), as a related matter under 37 C.F.R. § 42.8(b)(2). Pet. 53–54. Patent Owner states that the district court litigation involves the ’799 patent. Paper 5, 1. Petitioner also petitioned for an *inter partes* review of U.S. Patent No. RE46,817 (“the ’817 reissue patent”). Pet. 54. The Board denied institution on December 3, 2018. *See Thermo Fisher Scientific Inc.*

*v. The Regents of the University of California*, Case IPR2018-01156 (PTAB Dec. 3, 2018) (Paper 10). The '799 patent and the '817 reissue patent share the same written description, and claim priority to the same priority documents. Paper 5, 1; Prelim. Resp. 40. Patent Owner identifies the following proceedings as related matters: IPR2018-01367, IPR2018-01368, IPR2018-01369, and IPR2018-01370. Paper 3, 1–2. Those related matters, involving the same parties and related patents, are at the pre-institution phase.

*B. The '799 patent*

The '799 patent relates to a method for detecting and analyzing polynucleotides in a sample, using a FRET (fluorescence resonance energy transfer)-based light-harvesting multichromophore system. Ex. 1001, Abstract. The system is made up of at least two components: “(a) a cationic multichromophore, and (b) a ‘sensor polynucleotide’ (Oligo-C\*) comprising an anionic polynucleotide conjugated to a signaling chromophore.” *Id.* at 4:14–17. The '799 patent states that “the optical amplification provided by a water soluble multichromophore[,] such as a conjugated polymer[,] can be used to detect polynucleotide hybridization to a sensor polynucleotide.” *Id.* at 4:18–21. According to the '799 patent, the system is “useful for any assay in which a sample can be interrogated regarding a target polynucleotide. Typical assays involve determining the presence of a target polynucleotide in the sample or its relative amount.” *Id.* at 4:37–39.

The '799 patent states that light-harvesting multichromophore systems are “efficient light absorbers by virtue of the multiple chromophores they comprise,” and can “efficiently transfer energy to nearby luminescent

species,” called “signaling chromophores.” *Id.* at 10:54–56, 11:1–3. The ’799 patent states that “[t]he multichromophores used in the present invention are polycationic and can interact with a sensor polynucleotide electrostatically.” *Id.* at 11:41–43.

In a preferred embodiment, the multichromophore is a conjugated polymer. *Id.* at 11:55–56. Conjugated polymers are “characterized by a delocalized electronic structure and can be used as highly responsive optical reporters for chemical and biological targets.” *Id.* at 11:20–22. The ’799 patent states that “the backbone” of the conjugated polymer “contains a large number of conjugated segments in close proximity,” and thus, is efficient for FRET. *Id.* at 11:24–28.

The sensor polynucleotide is an anionic polynucleotide complementary to the target polynucleotide to be assayed. *Id.* at 12:47–49. The ’799 patent states that it may be conjugated to a signaling chromophore using any chemical method known in the art. *Id.* at 12:52–54. Signaling chromophores “include any substance which can absorb energy from a polycationic multichromophore in an appropriate solution and emit light,” such as fluorophores. *Id.* at 12:59–62.

The ’799 patent states that “[a]ny instrument that provides a wavelength that can excite the polycationic multichromophore and is shorter than the emission wavelength(s) to be detected can be used for excitation.” *Id.* at 16:24–27. Similarly, the light emitted from the signaling chromophore “can be detected through any suitable device or technique.” *Id.* at 16:34–36. The ’799 patent states that “many suitable approaches are known in the art” for detecting the emitted light.” *Id.* at 16:36–37.

*C. Challenged Claims*

Petitioner challenges claims 1, 3, 4, 6, and 7 of the '799 patent.

Pet. 13. Claim 1 is the only independent claim, and provides:

1. A method comprising:
  - (a) contacting a sample with a light harvesting multichromophore system, the system comprising:
    - i) a signaling chromophore; and
    - ii) a water-soluble conjugated polymer comprising a delocalized electronic structure, wherein the polymer can transfer energy from its excited state to the signaling chromophore to provide a greater than 4 fold increase in fluorescence emission from the signaling chromophore than can be achieved by direct excitation of the signaling chromophore in the absence of the polymer;
  - (b) applying a light source to the sample; and
  - (b) detecting whether light is emitted from the signaling chromophore.

Ex. 1001, 21:50–65.

*D. Asserted Ground of Unpatentability*

Petitioner challenges the patentability of claims 1, 3, 4, 6, and 7 of the '799 patent on the following ground:

<b>Claims</b>	<b>Basis</b>	<b>Reference</b>
1, 3, 4, 6, and 7	35 U.S.C. § 102(b)	Bazan <sup>1</sup>

Pet. 13–14. Petitioner also relies on the Declaration of Kirk S. Schanze, Ph.D. (Ex. 1002). *Id.* at 3. Patent Owner disputes that Petitioner's asserted ground presents a proper unpatentability challenge for an *inter partes*

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<sup>1</sup> Guillermo C. Bazan et al., U.S. Patent Application Publication No. US 2004/0142344 A1 (July 22, 2004) ("Bazan," Ex. 1026).

review, and further disputes that Petitioner's asserted ground renders the challenged claims unpatentable. *See generally* Prelim. Resp.

## II. ANALYSIS

We address below whether the Petition meets the threshold showing for institution of an *inter partes* review under 35 U.S.C. § 314(a). We consider the asserted ground of unpatentability in view of the understanding of a person of ordinary skill in the art. For the purpose of this decision, we find that the prior art itself is sufficient to demonstrate the level of ordinary skill in the art at the time of the invention. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art, itself, can reflect appropriate level of ordinary skill in art). Further, based on the information presented at this stage of the proceeding, we consider Petitioner's declarant, Dr. Schanze, qualified to opine from the perspective of an ordinary artisan at the time of the invention. *See* Ex. 1027 (curriculum vitae of Dr. Schanze).

### A. Priority Documents

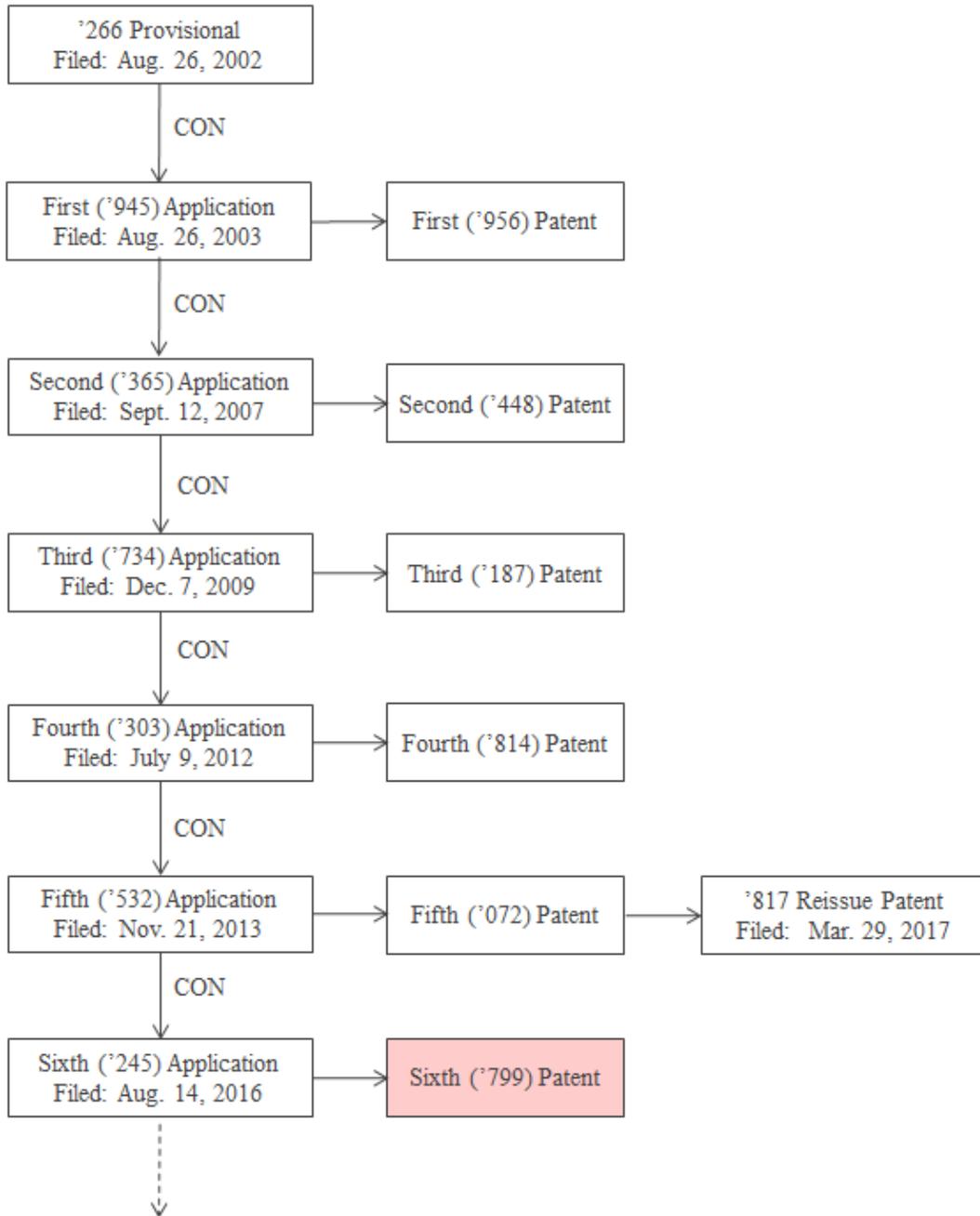
The '799 patent was filed as U.S. Patent Application No. 14/460,245 ("the Sixth Application") on August 14, 2014. Ex. 1001, (21), (22); *see also* Ex. 1014. The Sixth Application claimed the benefit of a series of continuation applications, the earliest of which includes U.S. Application No. 10/648,945, filed on August 26, 2003 ("the First Application"), and Provisional Application No. 60/406,266, filed on August 26, 2002 ("the Provisional Application"). Ex. 1001, (60).

The written description of the Provisional Application differs from that of the First Application, *compare* Ex. 1003, 2–57, *with* Ex. 1004, 5–49<sup>2</sup>, but the First Application “incorporate[s]” the Provisional Application “by reference in its entirety,” Ex. 1004, 5. All applications from the First Application through the Sixth Application share an identical written description. *Compare* Ex. 1004, 5–49, *with* Ex. 1014, 10–38.

Petitioner provides a schematic representation of the series of applications leading to the ’799 patent, and to which the ’799 patent claims priority. Pet. 4. We note that the schematic provides an incorrect filing date year for the Sixth Application, but we otherwise find the schematic useful for understanding the ’799 patent’s priority chain and reproduce it below.

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<sup>2</sup> For consistency with the parties, we use the page numbering added to Exhibit 1004.



A schematic representation by Petitioner of the series of applications leading to the '799 patent. *See* Pet. 4.<sup>3</sup>

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<sup>3</sup> The Sixth Application was filed on August 14, 2014, rather than in 2016, as indicated in the schematic.

Concurrently with the filing of the Sixth Application, Patent Owner filed a preliminary amendment cancelling all previous claims and adding new claims directed to methods for using the disclosed light-harvesting multichromophore system. Ex. 1014, 3–4.

*B. Claim Construction*

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b) (2016)<sup>4</sup>; *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard).

Under that standard, we presume that a claim term carries its “ordinary and customary meaning,” which “is the meaning that the term would have to a person of ordinary skill in the art in question” at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007); *see also Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1062 (Fed. Cir. 2016) (“Under a broadest reasonable interpretation, words of the claim must

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<sup>4</sup> The claim construction standard to be employed in an *inter partes* review recently changed. *See Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board*, 83 FED. REG. 51340 (Oct. 11, 2018). Petitioner states that it adopts certain constructions made by the district court in concurrent litigation “in line with the proposed modification to the rules . . . requiring that the Board apply a *Phillips*-type claim construction analysis in post-grant proceedings.” Pet. 14. But, based on the filing date of the Petition in this proceeding, the applicable claim construction standard remains the “broadest reasonable construction,” as set forth in 37 C.F.R. § 42.100(b) (2016). *See* 83 FED. REG. at 51340 (stating that the new rule applies to all post-grant proceedings filed on or after November 13, 2018).

be given their plain meaning, unless such meaning is inconsistent with the specification and prosecution history.”). Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner proposes constructions of certain claim terms. Pet. 14–15. Patent Owner argues that most of those constructions are unnecessary, because Petitioner “never indicates how they relate to the ground asserted in the Petition.” Prelim. Resp. 4–5. To determine whether to institute an *inter partes* review, we need not explicitly interpret every claim term for which Petitioner proposes a construction. See 35 U.S.C. § 314(a); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”). We find that, to resolve whether Petitioner has demonstrated a reasonable likelihood of prevailing, we need only address the parties’ respective constructions of “greater than 4 fold increase in fluorescence emission” and “in the absence of the polymer.”

*i. “greater than 4 fold increase in fluorescence emission”*

Petitioner contends that “greater than 4 fold” is an open-ended range that “has a lower limit but no upper limit.” Pet. 18 (quoting *In re Fisher*, 427 F.2d 833, 839 (CCPA 1970)). Thus, Petitioner contends that “greater than 4 fold increase in fluorescence emission” should be construed as having “an increase in fluorescence emission that is at least 4 fold and includes at least 10-fold and 100-fold increases, for example.” *Id.* at 20.

In support of its definition, Petitioner relies on the *Markman* Order issued in the district court litigation. *Id.* at 18 (citing Ex. 1044). In that Order, the district court stated that “[t]he claim language places no upper limit on the increase in fluorescence emission,” and “[t]he claim language merely requires that the increase be at least greater than 4 fold.” Ex. 1044, 17. Petitioner also relies on statements made by the parties’ respective experts. Pet. 18 (citing Ex. 1002; Ex. 1045<sup>5</sup>). Specifically, Petitioner states:

Both Dr. Schanze and Dr. Swager (Patent Owner’s expert) agree that the phrase ‘greater than 4 fold’ has no upper limit. Both experts testified that a POSA would have understood the ’799 patent claims to be broad, and cover, for example, at least 10-fold and 100-fold increases in fluorescence emission.

*Id.* (citing Ex. 1002 ¶ 89; Ex. 1045, 161:25–162:17).

Patent Owner disputes Petitioner’s characterization of the *Markman* Order, stating that “the district court denied [Petitioner’s] request to include ‘no upper limit’ in the claim construction.” Prelim. Resp. 5 (citing Ex. 1044, 19 n.7). Petitioner states that the district court’s construction was “an increase of fluorescence emission from the signaling chromophore of more than 4 fold,” and argues that no construction of the phrase is necessary. *Id.* at 6.

Claim 1 provides a method for detecting light emitted from a signaling chromophore by contacting a sample with a light-harvesting multichromophore system that comprises a signaling chromophore and a water-soluble conjugated polymer. Ex. 1001, 21:50–65. Claim 1 describes

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<sup>5</sup> Ex. 1045 is the deposition transcript of Timothy Manning Swager, Ph.D., taken in the district court litigation.

the water-soluble conjugated polymer in terms of its structure (i.e., “a delocalized electronic structure”) and its function (i.e., it “can transfer energy from its excited state to the signaling chromophore to provide a greater than 4 fold increase in fluorescence emission”). *Id.* at 21:55–62. Thus, by its plain terms, the claimed water-soluble conjugated polymer can transfer energy from its excited state to the signaling chromophore to provide a greater than 4 fold increase in fluorescence emission. *See, e.g., Veritas Techs. LLC v. Veeam Software Corp.*, 835 F.3d 1406, 1411 (Fed. Cir. 2016) (claim construction begins with the plain language of the claims).

The written description of the ’799 patent does not define “greater than 4 fold” but provides, e.g., an example of a water-soluble conjugated polymer that increases the fluorescence emission of a signaling chromophore by “~4 fold.” Ex. 1001, 18:15–18. The ’799 patent also explains that the signaling chromophore reached a point of “acceptor saturation,” the point at which “not all photons harnessed by polymer 1 (the donor) can be transferred to the Oligo-C\* (the acceptor).” *Id.* at 18:9–12. At acceptor saturation, the ’799 patent explains, photoluminescence of the signaling chromophore no longer increased. *Id.* at 18:12–15. Thus, the ’799 patent, while placing no express numerical upper limit on the increase in fluorescence emission, teaches that a signaling chromophore inherently possesses an upper limit on fluorescence emission, based on that signaling chromophore’s acceptor saturation point. *Id.*<sup>6</sup>

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<sup>6</sup> For example, the Provisional Application reports a “more than 25 times greater” fluorescence emission at the signaling chromophore’s saturation point. Ex. 1003, 27:17–20.

Turning to the extrinsic evidence, Dr. Schanze testifies that “claim [1] does not recite an upper limit,” and thus, an ordinarily skilled artisan would interpret the term “greater than 4 fold” as “encompass[ing] 10-, 50-, even 100-fold increases in fluorescence emission.” Ex. 1002 ¶ 89. We are not persuaded that Dr. Schanze’s testimony supports Petitioner’s construction, however, because Dr. Schanze does not explain why the ordinarily skilled artisan would *understand* “greater than 4 fold” to necessarily encompass numbers of 50, 100, and up to infinity, especially given that the ’799 patent teaches some inherent limit on fluorescence emission based on the signaling chromophore’s acceptor saturation point. Ex. 1001, 18:12–15. Instead, Dr. Schanze appears to rely merely on the “plain words of the claim,” without reference to, or consideration of, acceptor saturation in a FRET-based light-harvesting system. *See* Ex. 1002 ¶¶ 89-96; *see also* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”).

We also find no support for Petitioner’s construction in Dr. Swager’s deposition testimony from the district court litigation. *See* Pet. 18 (citing Ex. 1045, 161:25–162:17). The question presented to Dr. Swager at the deposition asks for a legal conclusion as to the scope of a claim, rather than an interpretation of how an ordinarily skilled artisan would understand the claim phrase. *See* Ex. 1045, 161:25–162:17. Because “experts may be examined to explain terms of art, and the state of the art, at any given time, but they cannot be used to prove the proper or legal construction of any instrument of writing,” Dr. Swager’s testimony does not inform our analysis. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015)

(quotation omitted); *see also id.* (explaining that a district court may rely on expert testimony to make “a factual finding that, in general, a certain term of art had a particular meaning to a person of ordinary skill in the art at the time of the invention,” but that “the district court must then conduct a legal analysis: whether a skilled artisan would ascribe that same meaning to that term *in the context of the specific patent claim under review*” (emphasis in original)).

Finally, we reject Petitioner’s apparent contention that case law supports a *per se* rule that any range identifying only a minimum value necessarily covers that minimum value to infinity. For example, Petitioner cites to *MagSil Corp. v. Hitachi Global Storage Technologies*, 687 F.3d 1377, 1383 (Fed. Cir. 2012), for the proposition that “open-ended ranges are not limited to what is reported in the literature or what patentees believe to be the highest achievable value.” Pet. 19.

*MagSil* is distinguishable, however, in that the *patentee* in that case sought a broad construction for the claim phrase “a change in resistance of at least 10%” to cover the defendant’s disk drive product. *See MagSil*, 687 F.3d at 1381 (“The record shows that MagSil advocated for a broad construction of this claim term.”). The district court had construed the phrase to cover resistance changes from 10% “up to infinity.” *Id.* at 1381 (citation omitted). The Federal Circuit held that this broad construction was not enabled under 35 U.S.C. § 112, because—contrary to MagSil’s litigation position—the inventors during prosecution understood that a 100% resistive change was the highest possible value for resistive change. *Id.* at 1382. The Court also emphasized that values greater than 100% resistive change were

not achieved until 12 years after the patent at issue was filed. *Id.* “In sum,” the Court held, “this field of art has advanced vastly after the filing of the claimed invention,” and “[t]he specification . . . does not contain sufficient disclosure to present even a remote possibility that an ordinarily skilled artisan could have achieved the modern dimensions of this art.” *Id.*

In this case, however, it is Petitioner that advocates for an unlimited claim range to support its lack-of-priority argument. This is in contrast to *MagSil*, where “MagSil’s difficulty in enabling the asserted claims [was] a problem of its own making.” *Id.* at 1384; *see also Liebel–Flarsheim Co. v. Medrad, Inc.*, 481 F.3d 1371, 1380 (Fed. Cir. 2007) (“The irony of this situation is that Liebel successfully pressed to have its claims include a jacketless system, but, having won that battle, it then had to show that such a claim was fully enabled, a challenge it could not meet.”). In addition, Petitioner does not point us to record evidence suggesting that an ordinarily skilled artisan would understand that signaling chromophores could (even in theory) achieve an unlimited increase in fluorescence (or even a 100-fold increase), especially given that the art teaches signaling chromophores reach acceptor saturation in a FRET-based light-harvesting system. Ex. 1001, 18:12–15.

For these reasons, we give the phrase “greater than 4 fold increase in fluorescence emission” its plain and ordinary meaning, which is consistent with the written description of the ’799 patent, and with the district court’s construction: “an increase of fluorescence emission from the signaling chromophore of more than 4 fold.” Ex. 1044, 19.

*ii. “in the absence of the polymer”*

Petitioner contends that “in the absence of the polymer” “means that the polymer is not physically present when measuring direct emission of the signaling chromophore.” Pet. 17. Petitioner contends that this construction is supported by the plain meaning of the words in the claims, as well as a dictionary definition of “absence” as: “failure to be present – opposed to presence.” *Id.* at 16–17 (citing Ex. 1044, 18). Petitioner also contends that the specification “gives no particular meaning to the term” that would indicate to the ordinarily skilled artisan that the “phrase should be interpreted in a way different from its plain and ordinary meaning.” *Id.* at 17 (citing Ex. 1002 ¶ 86–88).

Patent Owner contends that Petitioner’s construction is inconsistent with the construction Petitioner proposed in the district court litigation. Prelim. Resp. 6–7. Specifically, Patent Owner contends that Petitioner proposed “without polymer present” in district court, but now “deceptively departs” from that construction to “requir[e] an affirmative method step of measuring direct emission of the signaling chromophore without the polymer physically present.” *Id.* (citing Pet. 16; Ex. 1044, 19).

Claim 1 recites that the claimed water-soluble conjugated polymer can transfer energy from its excited state to the signaling chromophore “to provide a greater than 4 fold increase in fluorescence emission from the signaling chromophore than can be achieved by direct excitation of the signaling chromophore in the absence of the polymer.” Ex. 1001, 21:55–62. The written description of the ’799 patent refers to “in the absence of the polymer” twice: (1) in Example 3, which provides that “[i]ntegrated fluorescence emission at this ratio was ~4 fold greater than that of the

directly excited (480 nm) probe in the absence of polymer 1,” *id.* at 18:15–18; and (2) in Example 5, which provides that “[d]irect excitation of the signaling Oligo-C\* (480 nm), in the absence of polymer, only provided an approximate 4 fold sensitization of the intercalated EB,” *id.* at 19:1–4.

Although not addressed by either party, we turn to the prosecution history. *WesternGeco LLC v. ION Geophysical Corp.*, 889 F.3d 1308, 1323 (Fed. Cir. 2018) (“A patent’s specification, together with its prosecution history, constitutes intrinsic evidence to which the Board gives priority when it construes claims.”). We observe that the phrase “of the signaling chromophore in the absence of the polymer” was added to the claims during prosecution to overcome the examiner’s rejection for indefiniteness under 35 U.S.C. § 112. Ex. 1014, 113. Specifically, the Examiner rejected the pending claims “because it is unclear what the phrase ‘direct excitation’ means. It is unclear what is directly excited and how.” *Id.* In response, applicants amended the claims to include the phrase “of the signaling chromophore in the absence of the polymer” following “direct excitation.” *Id.* at 123. Thereafter, the Examiner allowed the application. *Id.* at 140–144. Based on applicants’ amendment and the Examiner’s allowance, it appears to us that the claim phrase distinguishes “direct excitation” of the signaling chromophore from “indirect” excitation of the signaling chromophore by FRET from the conjugated polymer.

For these reasons, we interpret the phrase “in the absence of the polymer” broadly, to encompass not only the district court’s construction of “without polymer present,” Ex. 1044, 19, but also to encompass the lack of energy transfer (via FRET) from the conjugated polymer to the signaling

chromophore. No further interpretation is necessary. *Vivid Techs.*, 200 F.3d at 803.

### *C. Priority*

The parties dispute whether claims 1, 3, 4, 6, and 7 of the '799 patent are entitled to a priority date before September 12, 2007, the filing date of the Second Application. Pet. 21; Prelim. Resp. 9. Briefly, Petitioner asserts that the claims lack written description support in either the Provisional Application (filed August 26, 2002) or the First Application (filed August 26, 2003). Pet. 23–25. Petitioner asserts that, because “the challenged claims are not entitled to their earlier-filed priority applications, the first published application in the family,” i.e., Bazan (published July 22, 2004), “is prior art to, and anticipates, the challenged claims.” *Id.* at 2.<sup>7</sup> Patent Owner asserts that the challenged claims “are fully supported by the First Application and are thus entitled to a priority date of at least August 26, 2003.” Prelim. Resp. 9–10 (footnote omitted). Patent Owner asserts that, because “the Petition’s sole ground relies on this priority claim attack, the Petition fails to present a ground in which Petitioner would prevail in demonstrating unpatentability.” *Id.* at 10.

#### *i. Written Description*

To be entitled to the filing date of an earlier application, the earlier application must disclose the claimed invention “in the manner provided by

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<sup>7</sup> Because Bazan published between the filing of the First Application and the Second Application, we, like the parties, confine our analysis to whether the disclosures of the Provisional Application and the First Application support the challenged claims. *See* Pet. 24 n.3; Prelim. Resp. 10 n.1.

§ 112(a) (other than the requirement to disclose the best mode).” 35 U.S.C. §§ 119(e), 120. Section 112(a) requires that the specification contain a written description of the claimed invention. 35 U.S.C. § 112(a). “[T]he hallmark of written description is disclosure.” *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (*en banc*). The written description requirement is met when the specification “conveys to those skilled in the art that the inventor had possession of” and “actually invented” the claimed subject matter. *Id.* The purpose of the written description requirement is to ensure that a patent’s claims “do[] not overreach the scope of the inventor’s contribution to the field of art as described in the patent specification.” *Reiffin v. Microsoft Corp.*, 214 F.3d 1342, 1345 (Fed. Cir. 2000).

“To obtain the benefit of the filing date of a parent application, the claims of the later-filed application must be supported by the written description in the parent ‘in sufficient detail that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought.’” *Anascape, Ltd. v. Nintendo of Am. Inc.*, 601 F.3d 1333, 1335 (Fed. Cir. 2010) (quoting *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997)). Without written description support, claims containing new matter are unpatentable under § 112(a). *Ariad*, 598 F.3d at 1348. This required compliance with § 112(a) ensures that the applicant fully possessed the entire scope of the claim as of the original filing date. *TurboCare Div. of Demag Delaval Turbomachinery Corp. v. Gen. Elec. Co.*, 264 F.3d 1111, 1118 (Fed. Cir. 2001).

The test for adequate written description support “requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art.” *Ariad*, 598 F.3d at 1351. “The level of detail required to satisfy the written description requirement” necessarily “varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology.” *Id.* But a “mere wish or plan” for obtaining the claimed subject matter also does not satisfy the written description requirement. *Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 119 F.3d 1559, 1566 (Fed. Cir. 1997).

*ii. Permissibility of Petitioner’s Priority Challenge*

Before turning to the merits of Petitioner’s priority challenge, we address Patent Owner’s argument that the Board should deny institution because the Petition is “entirely premised on a thinly-veiled attack on the written description support for the claims.” Prelim. Resp. 1, 55–58. Patent Owner argues that, in an *inter partes* review, a claim may be challenged “only on a ground that could be raised under section 102 or 103.” *Id.* at 55 (quoting 35 U.S.C. § 311(b)). But here, Patent Owner argues, Petitioner’s priority challenge “is indistinguishable from an argument that the claims of the ’799 patent lack written description in the patent’s own specification,” and thus, represents “an impermissible basis for *inter partes* review.” *Id.*<sup>8</sup>

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<sup>8</sup> Patent Owner points out that Petitioner’s prior-art challenge relies on the publication of the First Application (which shares an identical written description with ’799 patent) as prior art, rather than an intervening third-party reference. *Id.* at 2. Patent Owner also points out that Petitioner has not alleged the introduction of new matter into the written description of the applications that would break the chain of priority documents. *Id.* at 56.

Upon consideration of the respective arguments and cases cited by Petitioner and Patent Owner, we are not persuaded that § 311 prohibits us from making a priority determination during an *inter partes* review, even under circumstances where—as here—the priority determination effectively coalesces with a written description analysis of the challenged claims’ own specification.

First, it is well established that “a patent’s claims are not entitled to an earlier priority date merely because the patentee claims priority.” *In re NTP, Inc.*, 654 F.3d 1268, 1276 (Fed. Cir. 2011). “Rather, for a patent’s claims to be entitled to an earlier priority date, the patentee must demonstrate that the claims meet the requirements of 35 U.S.C. § 120.” *Id.* In *NTP*, the Federal Circuit rejected the patentee’s assertion that 35 U.S.C. § 301 precluded an examination of priority during a reexamination proceeding, even though § 301 *et seq.* limited the scope of reexamination to “‘substantial new questions of patentability’ . . . based only on ‘prior art consisting of patents or printed publications.’” *Id.* at 1275 (quoting 35 U.S.C. §§ 303(a), 301 (2012)). The Federal Circuit explained that “[n]othing in 35 U.S.C. §§ 301 *et seq.* entitles a patentee to a claim of right to its earliest priority date,” and nothing “prohibits an examiner from determining whether or not a priority date was properly claimed during the original examination of the application.” *Id.* at 1277. Similarly here, Patent Owner has not directed us to anything in § 311 *et seq.* that automatically entitles it to its earliest priority filing date, or that prohibits us from determining whether Patent Owner is entitled to that date. *See* Prelim. Resp. 55–58.

Although *NTP* involved the reexamination statute, the Supreme Court has recognized that an *inter partes* review proceeding involves the reexamination of a patent. *Cuozzo*, 136 S. Ct. at 2143–44. Specifically, the Court explained:

The [*inter partes* review] proceeding involves what used to be called a reexamination (and . . . a cousin of *inter partes* review, *ex parte* reexamination, 35 U.S.C. § 302 *et seq.*, still bears that name). The name and accompanying procedures suggest that the proceeding offers a second look at an earlier administrative grant of a patent. Although Congress changed the name from “reexamination” to “review,” nothing convinces us that, in doing so, Congress wanted to change its basic purposes, namely, to reexamine an earlier agency decision.

*Id.* at 2144. Thus, we conclude that the Federal Circuit’s decision in *NTP* is sufficiently similar to the instant case so as to defeat Patent Owner’s argument.

Second, we observe that, although a priority analysis under 35 U.S.C. “§ 120 incorporates the requirements of § 112 ¶ 1, these requirements and the statutory mechanism allowing the benefit of an earlier filing date are separate provisions with distinct consequences.” *Reiffin v. Microsoft Corp.*, 214 F.3d 1342, 1346 (Fed. Cir. 2000). For example, the patent at issue in *NTP*, as a continuation, shared the same written description as the parent application. *NTP*, 654 F.3d at 1278. The Federal Circuit rejected the patentee’s argument that the claims at issue necessarily had priority to the parent application because, during prosecution, the examiner did not reject the claims under 35 U.S.C. § 112 for lack of written description. The Federal Circuit explained that there was no evidence that the examiner actually considered the issue, and that, in any event, “[d]eciding whether a

patent application satisfies § 112 requires a distinct and separate analysis from deciding whether that application satisfies § 120.” *Id.* Similarly here, Patent Owner has not directed us to evidence showing that the Examiner, during prosecution, considered whether the written description of the ’799 patent supports its claims. Thus, we disagree with Patent Owner that institution should be denied based upon an allegation that the Petition is premised upon a written description challenge in disguise.

*iii. Analysis*

The question Petitioner presents here is whether the Provisional Application and the First Application adequately describe a “greater than 4 fold increase in fluorescence emission” compared to “direct excitation of the chromophore in the absence of the polymer,” as recited in the challenged claims. *See* Pet. 25.

*(a) Nature and Scope of the Claims*

We start with the claims. Claim 1 recites that the claimed water-soluble conjugated polymer can transfer energy from its excited state to the signaling chromophore “to provide a greater than 4 fold increase in fluorescence emission from the signaling chromophore than can be achieved by direct excitation of the signaling chromophore in the absence of the polymer.” Ex. 1001, 21:55–62. As discussed above, we interpret “greater than 4 fold increase in fluorescence emission” to mean “an increase of fluorescence emission from the signaling chromophore of more than 4 fold.” *Supra* § II.B.i. And we interpret “in the absence of the polymer” broadly, to encompass “without polymer present.” *Id.* § II.B.ii.

*(b) Complexity and Predictability of the Relevant Technology*

The '799 patent discloses a FRET-based light-harvesting system utilizing a conjugated polymer and a signaling chromophore. Ex. 1001, Abstract. Petitioner alleges that the technical field of the patent involves “conjugated polymer energy transfer detection system[s].” Pet. 17. We accept Petitioner’s characterization of the relevant field for the purpose of this Decision. We also accept, for the purpose of this Decision, Dr. Schanze’s statement that an ordinarily skilled artisan in this field “would have had knowledge of the scientific literature concerning methods of synthesizing fluorescent conjugated polymers and signaling chromophores and using these polymers and chromophores for detecting binding events.” Ex. 1002 ¶ 11.

Although acknowledging that the complexity and predictability of the technical field informs the level of detail required to satisfy the written description requirement, Pet. 22, Petitioner does not address those factors with respect to conjugated polymer energy transfer detection systems in its priority analysis. For example, Petitioner does not argue or point us to evidence suggesting that the state of the art was unpredictable or involved unconventional, non-routine technology. *See* Pet. 21–37; *see also Centocor Ortho Biotech, Inc. v. Abbott Labs.*, 636 F.3d 1341, 1352 (Fed. Cir. 2011) (considering the state of human antibody technology in written description analysis).

Rather, in the “overview” section, Petitioner describes the state of the art as of 2002, the time of filing of the Provisional Application, as advanced. For example, Petitioner states that, “[b]y August 2002[,] researchers were regularly using sensing systems based on the theory of [FRET] for the

detection of analytes.” Pet. 8–9. Petitioner also argued that “[t]he field had described a variety of small-molecule fluorescent dyes, many of which were commercially available, for use in various FRET systems by August 2002.” *Id.* at 10. And, “[i]n addition to small molecule dyes, fluorescent conjugated polymers were becoming increasingly popular as donors in FRET systems by August 2002.” *Id.* at 11. Petitioner also alleges that “it was known that when a conjugated polymer transfers energy to another chromophore, that chromophore’s emission is increased compared to direct excitation of the chromophore.” *Id.* at 12. Dr. Schanze also testifies that the state of the art experienced a “rapid advance[]” in the period before 2002. Ex. 1002 ¶ 37.

Similarly, Petitioner argued that the relevant field was in an “advanced state” by 2002 in its Petition for *inter partes* review of the ’817 reissue patent in Case IPR2018-01156. Ex. 2001, 39, 57 (“the ’1156 Petition”). Claim 1 of the ’817 reissue patent, like claim 1 here, recites a water-soluble conjugated polymer that “transfers energy from its excited state to the signaling chromophore to provide a greater than 4 fold increase in fluorescence emission from the signaling chromophore than can be achieved by direct excitation.” Ex. 2002, 23:2–13. In the ’1156 Petition, Petitioner argued that an ordinarily skilled artisan would have considered providing a greater than 4 fold increase in fluorescence emission from a signaling chromophore routine and conventional. *See* Ex. 2001, 55 (stating that an ordinarily skilled artisan would have “maximized the emission from the chromophore in a number of *routine ways*” (emphasis added)); 53 (stating that an ordinarily skilled artisan “would have *routinely optimized* the FRET system . . . to achieve a greater than 4 fold increase in fluorescence

emission from the signaling chromophore” (emphasis added)); 56 (“arriving at the claimed greater than 4-fold increase in fluorescence emission would have been part of [the ordinarily skilled artisan’s] *routine optimization of the prior art*” (emphasis added)).

For these reasons, considering the evidence as a whole—including Petitioner’s arguments made in the ’1156 Petition—we are persuaded that the field of conjugated polymer energy transfer detection systems would have been considered a predictable art as of the August, 2002, filing date of the Provisional Application. With these background findings in mind, we now turn to the four corners of the First and Provisional Applications. *Ariad*, 598 F.3d at 1351.

(c) *Petitioner’s Arguments*

Petitioner asserts that a “greater than 4 fold increase in fluorescence emission” compared to “direct excitation of the chromophore in the absence of the polymer” represents a genus of fluorescence-emission increases, and that neither the First Application nor the Provisional Application “discloses sufficient species that are representative of the full scope” of that range. Pet. 25–26.

As to the First Application, Petitioner argues that the written description provides “marginal support for the very lower limit of the claimed ‘greater than 4 fold’ range.” *Id.* at 26. Specifically, Petitioner argues that Example 3 of the First Application reports a “~4 fold” increase in fluorescence emission, and that “~4” means “slightly less or more than four.” *Id.* at 26–27 (citing Ex. 1004, 32:4–18; Ex. 1002 ¶ 108). Petitioner argues that the “~8 fold” increase in fluorescence emission reported in

Example 5 of the First Application, however, “does not fall within the claimed range.” *Id.* at 27 (citing Ex. 1004, 33:16–20). According to Petitioner, the conjugated polymer of Example 5 is only responsible for a two-fold increase in emission, which is increased in turn by four-fold due to other causes, ultimately resulting in an eight-fold total increase.” *Id.* (citing Ex. 1002 ¶¶ 106–107; Ex. 1045, 204:2–13). Petitioner argues that Figure 4 shows that the presence of Oligo-C\* increases the fluorescence emission of the chromophore roughly four fold, and then the addition of the conjugated polymer increases fluorescence emission an additional two fold. *Id.* at 27–28 (citing Ex. 1004, 7:23–8:3; Ex. 1002 ¶¶ 106–107; Ex. 1045, 204:2–13). “Thus,” Petitioner argues, “Example 5 is an embodiment that achieves a less than two-fold increase in fluorescence, a species that does not fall within the claimed ‘greater than 4 fold increase in fluorescence emission . . . in the absence of the polymer.’” *Id.*

As to the Provisional Application, Petitioner argues that the written description provides only a “~4-fold” increase in fluorescence emission. *Id.* at 29–30. Petitioner argues that the Provisional Application provides only two examples, both labeled “Example 3.” *Id.* at 29 (citing Ex. 1003, 27:9–20 (“first Example 3”), 44 (“second Example 3”)). Petitioner argues that the second Example 3 is identical to Example 3 of the First Application, and thus provides only support for a “~4 fold” increase in fluorescence emission. *Id.* (citing Ex. 1003, 44; Ex. 1004, 32:4–18; Ex. 1002 ¶ 109). But the first Example 3, Petitioner argues, does not provide any support for the claimed range because the written description “does not state that the direct excitation of the signaling chromophore happened in the absence of the

polymer.” *Id.* (citing Ex. 1003, 27:9–20). According to Petitioner, “[a] POSA would thus have reasonably understood that the comparison made in [the first] Provisional Example 3 was made in the presence of polymer.” *Id.*

For these reasons, Petitioner argues, the First and Provisional Applications provide only one species (i.e., “~4 fold”) within the scope of the claimed “greater than 4 fold increase in fluorescence emission.” *Id.* at 31–32. Petitioner argues that that one species is not adequate to support the genus because “the transfer of energy from the conjugated polymer . . . is not unimportant—it is a critical element of the challenged claims.” *Id.* at 32 (citing Ex. 1001, 22:55–62; Ex. 1002 ¶¶ 102–103).

*(d) Analysis of the Disclosures*

There are no “bright-line rules governing, for example, the number of species that must be disclosed to describe a genus claim, as this number necessarily changes with each invention, and it changes with progress in a field.” *Ariad*, 598 F.3d at 1351. Upon considering the totality of the record, including the claimed subject matter, the specific examples and teachings of the First and Provisional Applications, the state of the art, and the parties’ respective arguments, we find that Petitioner has failed to establish adequately for institution that the First and the Provisional Applications do not contain a representative number of species needed in this case to reasonably convey possession of “a greater than 4 fold increase in fluorescence emission from the signaling chromophore than can be achieved by direct excitation of the signaling chromophore in the absence of the polymer.”

Specifically, we agree with the Patent Owner that, taken together, the First and the Provisional Applications<sup>9</sup> provide four working examples, or species, of “a greater than 4 fold increase in fluorescence emission.” Starting with the First Application, Example 3 reports a “~4 fold” increase in fluorescence emission, which as Petitioner admits, falls within the scope of the claim. Ex. 1004, 32 (providing that the “[i]ntegrated fluorescence emission . . . was ~4 fold greater than that of directly excited (480 nm) probe in the absence of polymer 1”); *see also* Pet. 26–27.

Example 5 of the First Application reports a “~8 fold” increase in fluorescence emission. Ex. 1004, 33:14–24. Specifically, Example 5 describes a method using polymer 1 with a polynucleotide sequence having an appended fluorescein dye and a polynucleotide specific dye, ethidium bromide (EB). Ex. 1004, 33. The First Application states that “excitation of [polymer] 1” “resulted in emission intensities of EB that were ~8 fold greater than that of the directly excited (500 nm) EB.” *Id.* We are not persuaded by Petitioner’s argument that the “~8 fold” increase in fluorescence emission reported in Example 5 is outside the scope of the claimed range. The crux of Petitioner’s argument appears to be that a light-

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<sup>9</sup> As noted above, the First Application states that the Provisional Application “is hereby incorporated by reference in its entirety.” Ex. 1004, 5:8–10. Petitioner does not challenge this incorporation by reference. *See generally* Pet. We consider the disclosure of the Provisional Application as part of the First Application. *See Harari v. Lee*, 656 F.3d 1331, 1335 (Fed. Cir. 2011) (holding prior applications were incorporated by reference by the “broad and unequivocal language” of “[t]he disclosures of the two applications are hereby incorporated by reference.”).

harvesting multichromophore system having two signaling chromophores does not fall within the scope of the claims. But the First Application describes, as an embodiment of the invention, a light-harvesting multichromophore system comprising a second signaling chromophore. Ex. 1004, 26:19–27:7. Specifically, the First Application states that a polynucleotide-specific dye can be used as the second signaling chromophore, and that the initial signaling chromophore (which is conjugated to the sensor polynucleotide) transfers energy to the second signaling chromophore (which is intercalated in the double-stranded sensor-target polynucleotide duplex). *Id.* at 26:28–27:7. In Example 5, the ethidium bromide serves as the second signaling chromophore and the fluorescein dye serves as the first signaling chromophore. Ex. 1004, 33. We agree with Patent Owner that nothing in claim 1 excludes this embodiment from its scope. *See* Prelim. Resp. 15–16; Ex. 2008 ¶¶ 30–31. Indeed, claim 6 specifies that the method of claim 1 “further comprises a second signaling chromophore,” thus confirming the broader scope of claim 1. Ex. 1001, 23:3–4.

Turning to the Provisional Application, Example 2 reports an “8 times larger” increase in fluorescence emission. Ex. 1003, 26:14–27:7. Specifically, Example 2 describes a system comprising polymer 1 and a sensor peptide nucleic acid conjugated to a signaling chromophore (PNA-C\*). *Id.*; *see also id.* at 52 (Fig. 1). Hybridization of a complementary target polynucleotide to the sensor polynucleotide resulted in a “fluorescein emission” of “more than 8 times larger than that obtained from direct C\* excitation in the absence of [polymer] 1.” *Id.* at 27:2–3. The Provisional

Application explains: “This increased C\* emission in the energy transfer complex comprising the sensor PNA, target polynucleotide and polycationic multichromophore indicates that optical amplification is provided by the multichromophore (polymer 1).” *Id.* at 27:3–5. Thus, we agree with Patent Owner that Example 2 falls within the scope of “a greater than 4 fold increase in fluorescence emission from the signaling chromophore than can be achieved by direct excitation of the signaling chromophore in the absence of the polymer.” Prelim. Resp. 18–19. We note that Petitioner does not address Example 2.

The first Example 3 reports a “more than 25 times greater” increase in fluorescence emission. *Id.* at 27:9–20. Specifically, this Example describes an experiment designed to optimize energy transfer via FRET from polymer 1 to PNA-C\* by varying their ratios. *Id.* at 27:10. The First Application states that a “maximum in the FRET” occurred when the ratio of conjugated polymer chains to PNA-C\* was 1:1. *Id.* at 27:12–14. The First Application explains that this relationship “was expected,” in part, because when the amount of conjugated polymer exceeds the amount of PNA-C\*, “not all the photons harnessed by [polymer] 1 (the donor) can be transferred to the DNA/PNA-C\* hybrid (the acceptor).” *Id.* at 27:14–17. The First Application further explains that, at this acceptor saturation point, the fluorescence emission “is more than 25 times greater than that obtained by direct C\* excitation (480 nm), giving further evidence of signal amplification by the multiple chromophore structure of polymer 1.” *Id.* at 27:17–20.

We are not persuaded by Petitioner's argument that the "more than 25 times greater" increase in fluorescence emission reported in Example 3 is outside the scope of the claimed range. Petitioner's argument is premised solely on the absence of express language "in the absence of the polymer." *See* Pet. 29. But Example 3, as noted above, describes an experiment designed to optimize energy transfer via FRET from polymer 1 to PNA-C\* by varying their ratios. Ex. 1003, 27:10. Because Example 3 immediately follows Example 2, uses the identical conjugated polymer-signaling chromophore pair (i.e., polymer 1 and PNA-C\*), and the same concentration of PNA-C\* (i.e.,  $2.5 \times 10^{-8}$  M), we are persuaded by Patent Owner's argument that the most reasonable interpretation of Example 3 is that "direct C\* excitation" occurred in the absence of polymer 1, just as Example 2 states that the direct excitation of C\* occurred in the absence of polymer 1. Ex. 1003, 26:14–27:20; Prelim. Resp. 19–21. As noted above, Petitioner fails to address Example 2.

Taken together, then, we find that the First and Provisional Applications provide four species that fall within the scope of the genus. Because Petitioner argues that the First and Provisional Applications disclose only one species (i.e., "~4 fold"), we find that Petitioner has failed to establish for institution that these four species do not provide adequate written description support for the claimed genus. Moreover, the number of species necessary is dependent on the predictability of the art. As the Federal Circuit has explained, "[i]f the difference between members of [a species] is such that [a] person skilled in the art would not readily discern that other [species] of the genus would perform similarly to the disclosed

members, *i.e.*, *if the art is unpredictable*, then disclosure of more species is necessary to adequately show possession of the entire genus.” *Bilstad v. Wakalopulos*, 386 F.3d 1116, 1124 (Fed. Cir. 2004) (emphasis added). Here, again, Petitioner does not address the predictability in the art, and in the ’1156 Petition, argued that the art was predictable.

*iv. Conclusion*

Based on our review of the parties’ arguments and the evidence, we find that Petitioner has failed to show, for the purpose of institution, that the First and Provisional applications lack sufficient written-description support for the subject matter of “a greater than 4 fold increase in fluorescence emission from the signaling chromophore” recited in the claims of the ’799 patent. Thus, we agree with Patent Owner that claims 1, 3, 4, 6, and 7 of the ’799 patent are entitled to a priority date of at least August 26, 2003, the filing date of the First Application. Because we decide that written description is satisfied based on a sufficient number of representative species, we need not address Petitioner’s assertions about the structure-function correlation absent a sufficient number of representative species. *See* Pet. 32–37.

*D. Alleged Anticipation by Bazan*

Petitioner argues that claims 1, 3, 4, 6, and 7 of the ’799 patent are unpatentable for anticipation by Bazan under 35 U.S.C. § 102(b). *See* Pet. 37–53. As discussed above, claims 1, 3, 4, 6, and 7 of the ’799 patent are entitled to a priority date of at least August 26, 2003, the filing date of the First Application. Bazan published on July 22, 2004. Thus, Bazan is not prior art under § 102(b). Because anticipation under § 102(b) is the

Petitioner's sole ground of unpatentability, Petitioner fails to demonstrate a reasonable likelihood of prevailing at trial as to any challenged claim.

*E. Sovereign Immunity*

Petitioner notes that Patent Owner has asserted sovereign immunity and moved to terminate in other, non-related *inter partes* review proceedings. Pet. 52–53 (citing *St. Jude Medical, LLC v. The Regents of the University of California*, case no. IPR2017-01338 (Paper 9); *St. Jude Medical, LLC v. The Regents of the University of California*, case no. IPR2017-01339 (Paper 9)). Petitioner asserts that Patent Owner has waived any right to sovereign immunity in this proceeding based upon Patent Owner's litigation conduct involving the '799 patent. Pet. 52–53. Because Patent Owner has not asserted sovereign immunity in this proceeding, *see generally* Prelim. Resp., we do not address the issue in this Decision.

III. CONCLUSION

Taking account of the information presented in the Petition and the Preliminary Response, and the evidence of record, we determine that Petitioner fails to demonstrate a reasonable likelihood of prevailing at trial as to any challenged claim. Accordingly, the Petition is *denied*, and no trial is instituted.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is *denied*, and no trial is instituted.

IPR2018-01347  
Patent 9,085,799 B2

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