

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CHARLES RIVER LABORATORIES, INC.,
Petitioner,

v.

SEIKAGAKU CORPORATION,
Patent Owner.

IPR2025-00440
Patent 11,236,318 B2

Before MICHAEL J. FITZPATRICK, JAMES A. WORTH, and
TAWEN CHANG, *Administrative Patent Judges*.

CHANG, *Administrative Patent Judge*.

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

I. INTRODUCTION

Charles River Laboratories, Inc. (“Petitioner”) filed a Petition for *inter partes* review of claim 21 of U.S. Patent No. 11,236,318 B2 (Ex. 1001, “the ’318 patent”). Paper 2 (“Pet.”). Seikagaku Corporation (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”).¹

We have authority under 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” For the reasons discussed below, we determine Petitioner has demonstrated a reasonable likelihood that the challenged claim of the ’318 patent is unpatentable. Accordingly, we institute an *inter partes* review of the challenged claim on each of the Grounds raised in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

A. Real Parties-in-Interest

Petitioner and Patent Owner each identifies itself as the real party-in-interest. Pet. ix; Paper 3, 1.

¹ In addition, Patent Owner filed a Discretionary Denial Brief on May 9, 2025 (Paper 6), to which Petitioner filed an Opposition on June 11, 2025. On July 10, 2025, the Acting Director denied Patent Owner’s request for discretionary denial and referred the Petition to the Board “to handle . . . in the normal course, including by issuing a decision on institution addressing the merits and other non-discretionary considerations, as appropriate.” Paper 9, 2.

B. Related Proceedings

Petitioner identifies the applications set forth in the Related U.S. Application Data section of the '318 patent. Pet. ix; Ex. 1001, code (63). Petitioner further identifies U.S. Patent Application No. 17/554,128, filed December 17, 2021, and U.S. Patent Application No. 18/346,420 (now U.S. Patent No. 11,959,109), filed July 3, 2023, as claiming benefit of priority to the '318 patent. Pet. ix.

Patent Owner states that the '318 patent is a “family member patent of U.S. Patent Nos. 11,959,109, 10,982,202, and 10,144,923” and that “[a] continuation application (App. Ser. No. 17,554,128) is pending in the family.” Paper 3, 1. Patent Owner notes that “Petitioner has challenged U.S. Patent No. 11,959,109 in PGR2025-00023.” *Id.*

C. The '318 Patent (Ex. 1001) and Relevant Background

The '318 patent, entitled “Recombinant Factor C and Method for Producing the Same, and Method for Measuring Endotoxin,” was filed as U.S. Patent Application No. 16/399,386 ('386 application) on April 30, 2019, and claims the benefit of U.S. Patent Application No. 15,983,725 ('725 application, now U.S. Patent No. 10,982,202), filed on May 18, 2018 and U.S. Application No. 14/650,767 ('767 application, now U.S. Patent No. 10,144,923), filed as Application No. PCT/JP2013/083082 on December 10, 2013. Ex. 1001, codes (54), (21), (22), (63), 1:8–16.

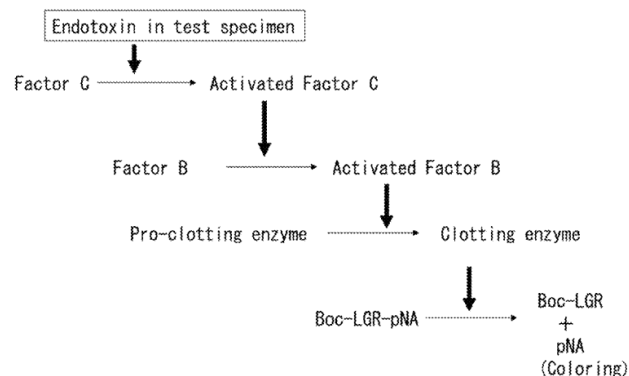
Endotoxin is a lipopolysaccharide in the outer membrane of Gram-negative bacteria that can cause “various pathological conditions via bacterial infection.” Ex. 1001, 1:27–31. “Therefore, detection of endotoxin

is essential in pharmaceutical products such as an injection, water, medical devices, and the like.” *Id.* at 1:34–36.

The Specification explains “it has been known that the American horseshoe crab (*Limulus polyphemus*) undergoes blood clotting when it is infected with a Gram-negative bacterium,” and the art has developed a “limulus test” to detect endotoxin by detecting the clotting enzyme or measuring the coagulation reaction when an amebocyte² lysate of a horseshoe crab comes into contact with endotoxin. Ex. 1001, 1:46–67, 2:1–9.

Figure 1 of the ’318 patent, reproduced below, shows the cascade reaction that occurs when endotoxin comes into contact with the horseshoe crab lysate:

[Fig. 1]



Ex. 1001, Fig. 1. Figure 1 depicts “[a] chart showing a cascade reaction system of the limulus test.” *Id.* at 12:15–16. In particular, endotoxin

² Amebocytes is a type of cell in the blood (hemolymph) of the horseshoe crab. Ex. 1010, 22.

activates Factor C, a serine protease zymogen, which activates Factor B, which in turn converts the pro-clotting enzyme into the corresponding clotting enzyme, which can “hydrolyze[] a specific site of a coagulogen molecule present in the lysate” to form a coagulin gel. *Id.* at 1:55–67.

Alternatively, as shown in Figure 1, the presence of the clotting enzyme may be confirmed via its reaction with a detection substrate (Boc-LGR-pNA) to release a dye (pNA). *Id.* at 21:3–11, 24:14-42, Fig. 1.

The Specification explains that, “from the viewpoint of protection of biological resources,” there is a demand to reconstitute the cascade reaction using genetic engineering instead of using lysate requiring horseshoe crab blood. Ex. 1001, 2:14–22. However, existing recombinant systems using insect and mammalian cells as hosts result in suppression of the cascade reaction due to the presence of certain salts in the reconstituted system, or insoluble and thus non-functional Factor C. *Id.* at 2:24–41.

According to the Specification, therefore, an object of its invention is “to provide a novel recombinant horseshoe crab Factor C, and a method for producing the recombinant Factor C.” Ex. 1001, 2:65–67. Furthermore, because “injections to be administered in vivo generally contain a variety of salts (ions)” and detection of endotoxin is often required during its production, another object of the invention is “to provide a reconstituted cascade reaction system which is not susceptible to reaction inhibition even in the presence of a salt (ion).” *Id.* at 3:1–8.

One measure of the degree to which the cascade reaction is inhibited in the presence of salt is “residual activity,” defined in the ’318 patent as a relative reactivity (%) observed for a measurement specimen (endotoxin concentration: 0.05 EU/mL) prepared by adding endotoxin to an ion-containing test specimen, with respect to the reactivity observed for another measurement specimen (endotoxin concentration: 0.05 EU/mL) prepared by adding endotoxin to injection water as 100%, in the assay system shown in FIG. 4.

Ex. 1001, 18:8–15. Figure 4 of the Specification is reproduced below:

[Fig. 4]

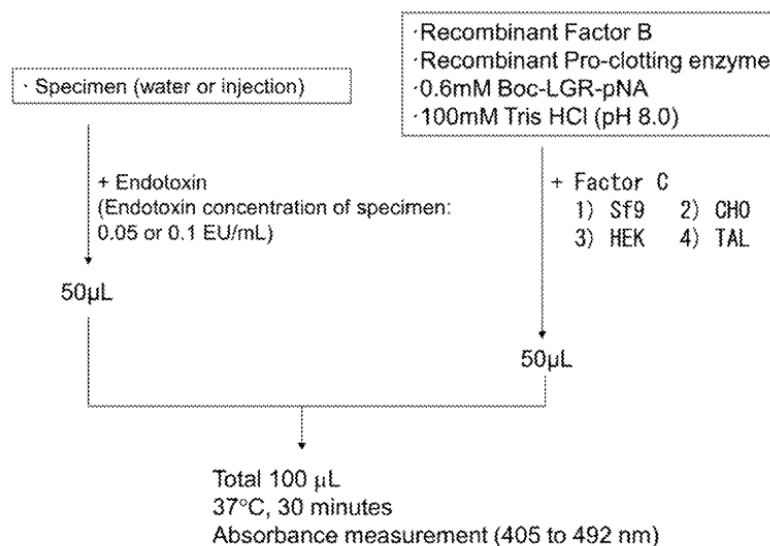


Figure 4 depicts “[a] scheme of measuring the activity of Factor C.” Ex. 1001, 12:26.

The Specification further states that the inventors have found that a recombinant horseshoe crab Factor C can be produced by use of human cells or Chinese hamster cells as host cells, and that endotoxin can be measured by

use of the thus-produced recombinant Factor C while reaction inhibition in the presence of a salt (ion) is mitigated.

Ex. 1001, 3:12–16.

D. Overview of Challenged Claim

Petitioner challenges claim 21 of the '318 patent, which is reproduced below:

21. A horseshoe crab Factor C protein having activity of Factor C,
wherein the horseshoe crab is *Limulus polyphemus*,
and wherein the horseshoe crab Factor C protein is produced through being recombinantly expressed from a Human Embryonic Kidney (HEK) 293 cell,
and
wherein the Factor C protein exhibits a residual activity of at least one selected from the group consisting of:
(1) 10% or higher in the presence of 21 mM sodium citrate; and
(2) 15% or higher in the presence of 16 mM magnesium sulfate.

Ex. 1001, 76:50–61 (claim 21).

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 8):

Ground	Claim(s) Challenged	35 U.S.C § ³	Reference(s)/Basis
1	21	103	Mizumura, ⁴ '498 PCT ⁵
2	21	103	Mizumura, McClymont ⁶

Petitioner further relies, *inter alia*, on the Declaration of Dr. Siddhartha S. Jain. (“Jain Declaration,” Ex. 1002).

II. ANALYSIS

A. Principles of Law

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is

³ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103, effective March 16, 2013. AIA § 3(b)–(c). Because Patent Owner previously represented that the parent ’725 application “contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013” (Ex. 1011), the AIA versions of §§ 102 and 103 apply to the ’318 patent. AIA § 3(n)(1)(B); *see also* Pet. 8 n.2 (pointing out Patent Owner’s representation to the Patent Office).

⁴ Mizumura et al., US 2015/0307864 A1, published Oct. 29, 2015 (Ex. 1009, “Mizumura”).

⁵ Mizumura et al., WO 2018/074498 A1, published April 26, 2018 (Ex. 1005, “’498 PCT”).

⁶ Karen McClymont, Structural Studies of the Endotoxin Sensing Protein Factor C (2017) (Ph. D. dissertation, University of Glasgow) (Ex. 1010, “McClymont”).

unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). The burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

However, Patent Owner has the burden of production to show that the claim is entitled to a filing date prior to the date of the alleged prior art. *See Tech Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008). Our reviewing court has explained that “[t]he burden of production cannot be met without some combination of citing the relevant record evidence with specificity and explaining the significance of the produced material in briefs.” *Parus Holdings, Inc. v. Google LLC*, 70 F.4th 1365, 1372 (Fed. Cir. 2023).

Pursuant to 35 U.S.C. § 120, a patent application is entitled to assert priority to the filing date of a prior application only “for an invention disclosed [in the prior application] in the manner provided by [35 U.S.C. §] 112(a) (other than the requirement to disclose the best mode).” Section 112(a) in turn requires the specification to (1) contain a written description of the claimed invention and (2) enable a skilled artisan to make and use the same without undue experimentation. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1340 (Fed. Cir. 2010) (en banc).

The test for sufficiency of a written description is whether the earlier application’s disclosure “reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Ariad*, 598 F.3d at 1351. That “test requires an objective inquiry into

the four corners of the specification from the perspective of a person of ordinary skill in the art.” *Id.* “[T]he level of detail required to satisfy the written description requirement varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology.” *Id.* (citing *Capon v. Eshhar*, 418 F.3d 1349, 1357–58 (Fed. Cir. 2005)).

The test for enablement is whether a person of ordinary skill in the art would be able to practice the claimed invention without “undue experimentation.” *Amgen Inc. v. Sanofi, Aventisub LLC*, 987 F.3d 1080, 1084. Factors to be considered in determining whether undue experimentation is needed include:

(1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

In re Wands, 858 F.2d 731, 737 (Fed. Cir. 1988).

In general, a claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and

content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness, if any. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We address Petitioner’s challenges with these standards in mind, and in view of the definition of the skilled artisan and the claim constructions discussed below.

B. Person of Ordinary Skill in the Art (“POSA”)

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 asserts that a person having ordinary skill in the art relevant to the ’318 patent “would have a Ph.D. degree in biological, chemical or biochemical engineering, molecular biology, or biochemistry and at least two years of experience utilizing or assessing horseshoe crab Factor C (lysate, purified native and/or recombinantly produced) for endotoxin detection and quantitation.” Pet. 19. Petitioner states that “[m]ore education could substitute for experience, and vice versa.” *Id.*

Patent Owner states that, “[s]olely for purposes of this Preliminary Response, [Patent Owner] does not dispute Petitioner’s definition.”

Prelim. Resp. 13. Patent Owner reserves the right to present a different definition in the event trial is instituted. *Id.*

On the current record, for purposes of this Decision, we accept Petitioner’s proposed definition, as it appears consistent with the level of skill in the art reflected in the prior art of record and the disclosure of the ’318 Patent. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (“the prior art itself [may] reflect[] an appropriate level” as evidence of the ordinary level of skill in the art) (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985)).

In addition, we note Petitioner cites to the Jain Declaration, which defines a person of ordinary skill in the art in the December 10, 2013 timeframe, to support its definition of “ordinary skill in the art relevant to the ’318 patent.” Pet. 19 (citing Ex. 1002 ¶¶ 61–66). Because the test of obviousness depends on the effective filing date of the challenged claim, which the parties dispute, December 10, 2013 may not be the appropriate time frame for determining the level of ordinary skill in the art for purposes of determining obviousness, even if it were the appropriate time frame for purposes of determining the effective priority date for claim 21. Nevertheless, we accept Petitioner’s proposed definition for purposes of this Decision, with the caveat that the level of skill may change over time.

C. Claim Construction

We construe claims “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b).” 37 C.F.R. § 42.100 (2021). Therefore, we construe the

challenged claims under the framework set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–19 (Fed. Cir. 2005) (en banc). Under this framework, claim terms are given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art, at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record. *Id.*

The parties do not propose express construction for any claim term. *See* Pet. 19–20; Prelim. Resp. 13. We find it unnecessary to construe any claim term to decide whether Petitioner satisfies the “reasonable likelihood” standard for instituting trial.

Any final written decision entered in this case may include express claim constructions, or may include discussion of claim scope that differs from that provided in our analysis below. Any final claim constructions will be based on the full trial record.

D. Overview of References Asserted Against Claim 21

1. Overview of Mizumura (Exhibit 1009)

Mizumura is a United States Patent Application Publication, US 2015/0307864 A1, entitled “Novel Recombinant Factor C and Method for Producing the Same, and Method for Measuring Endotoxin,” which was published on October 29, 2015. Ex. 1009, codes (19), (12), (10), (43), (54). Mizumura is the publication of the ’767 application, i.e., the grandparent application that was filed on December 10, 2013. *Id.*, code (21).

2. Overview of '498 PCT (Exhibit 1005)

The '498 PCT is an International Application published under the Patent Cooperation Treaty, WO 2018/074498 A1, entitled “Recombinant Proteins Derived from *Limulus* Bacterium, and DNA Molecules Encoding Same,” which was published on April 26, 2018. Ex. 1005, codes (12), (43) (10), (54).

The '498 PCT states that its inventors

have succeeded in obtaining full-length cDNAs encoding all of the protein factors involved in the coagulation mechanism of *Limulus polyphemus*, something that no one had succeeded in doing for many years, and in expressing all of the recombinant proteins, and have further discovered that these can be used for a variety of purposes, thereby completing the present invention.

Ex. 1005 ¶ 17. The '498 PCT discloses examples of such full-length cDNA (SEQ ID NOs: 1, 3) and amino acid (SEQ ID Nos: 2, 4) sequences. *See, e.g., id.* ¶ 173, pp. 49–57. It further discloses “DNA construct containing [the] cDNA, transformed cell, and method for producing recombinant . . . protein using the same.” *Id.* ¶¶ 20–46, 128–129. With respect to methods for producing recombinant protein, the '498 PCT states that host cells can include “mammalian cells and insect cells” and that “[h]uman cells include human embryonic kidney (HEK) derived cell lines,” an example of which is HEK293. *Id.* ¶ 39.

3. Overview of McClymont (Exhibit 1010)

McClymont is a thesis submitted in fulfillment of the requirements for the Degree of Doctor of Philosophy at the University of Glasgow, entitled

“Structural studies of the endotoxin sensing protein Factor C,” which appears to have been published on April 7, 2017. Ex. 1010, 1, prefatory page.

McClymont states as its aim “to develop a better understanding of how Factor C is activated by endotoxin binding and to identify conformational changes that take place as a result.” Ex. 1010, 2. In particular, “fragments of Factor C protein were produced recombinantly in *Escherichia coli* to determine the structures of the individual domains and identify the endotoxin binding region more precisely,” and “expression of the whole Factor C protein in eukaryotic expression systems was attempted to produce material for experiments that would shed light on any overall conformational change that occurs.” *Id.*

In its Appendix B, McClymont provides the predicted amino acid and DNA sequences of *Limulus polyphemus* Factor C. Ex. 1010, 159 (App. B). McClymont further tested three eukaryotic expression systems for suitability for lpFC expression: yeast (*Pichia pastoris*), insect (*Baculovirus* system) and mammalian (Flp-In™ TREx™ system). Ex. 1010, 38.

E. Priority Date of Claim 21

A foundational issue for Petitioner’s asserted grounds of unpatentability is whether Mizumura, the ’498 PCT, and McClymont qualify as prior art, which in turn depends on the priority date to which claim 21 is entitled. Patent Owner asserts that, based on the disclosures in the ’767 application in the priority chain, claim 21 is entitled to an effective filing date of December 10, 2013. Prelim. Resp. 13. Petitioner argues that

claim 21 is entitled to an effective filing date no earlier than the '318 patent's actual filing date, i.e., April 30, 2019, because the '767 application "neither describes nor enables the full scope of claim 21." Pet. 42.⁷

1. Written Description

Claim 21 claims a Factor C protein (1) from *Limulus polyphemus* horseshoe crab (2) recombinantly expressed from a Human Embryonic Kidney (HEK) 293 cell, that (3) exhibits a residual activity of either (a) 10% or higher in the presence of 21 mM sodium citrate or (b) 15% or higher in the presence of 16 mM magnesium sulfate.

(1) *Petitioner's Position*

Petitioner asserts that the '767 application lacks written description support for recombinant HEK293-produced *Limulus polyphemus* Factor C proteins having residual activity across the full scope of the claimed range. Pet. 22. Petitioner argues that the '767 application only disclosed residual activity values for recombinant *Tachypleus tridentatus* Factor C proteins and, furthermore, provided only a single residual activity value each for HEK-produced Factor C protein in the presence of sodium citrate and magnesium sulfate. *Id.* at 23.

⁷ Although the '386 application that issued as the '318 patent claims priority to several applications, Patent Owner presents arguments only with respect to the '767 application filed December 10, 2013. Thus, for purposes of institution, we limit our analysis to whether claim 21 is entitled to a priority date of December 10, 2013.

Citing the Jain Declaration, Petitioner asserts that an ordinarily skilled artisan would not expect protocols designed to produce recombinant *Tachypleus tridentatus* Factor C proteins to “yield recombinant proteins in soluble and functional form from a **different** species of crab,” *Limulus polyphemus*, much less *Limulus polyphemus* Factor C proteins “exhibit[ing] a function—residual activity—falling in and across the full scope of the claimed range.” Pet. 24 (citing Jain Decl. ¶¶ 82–84). Petitioner emphasizes that, as of 2013, the full sequence information of *Limulus polyphemus* Factor C protein was not known, and the ’767 application did not provide a structural explanation for the achievement of particular residual activity. *Id.*

(2) *Patent Owner’s Position*

Patent Owner points to the following disclosures in the ’767 application to argue that an ordinarily skilled artisan would have understood that the inventors had possession of the claimed recombinant *Limulus polyphemus* Factor C proteins:

- Statement in “Modes for carrying out the Invention” that “the ‘Factor C of the present invention is a **Factor C derived from a horseshoe crab**’” and identification of *Limulus polyphemus* as a known species, Prelim. Resp. 15 (citing Ex. 1006, 40);
- Statement that “test results indicate that **Factor C expressed in mammalian cells** can have **low susceptibility to activity inhibition by ions**,” *id.* at 17 (citing Ex. 1006, 99);
- Statements that “**Factor C of the present invention** may have low susceptibility to inhibition of activity by an ion” and that

“‘[s]pecific examples’ include ‘a residual activity of **10% or higher**’ in the presence of 21 mM sodium citrate and ‘a residual activity of **15% or higher**’ in the presence of 16 mM magnesium sulfate,” *id.* (citing Ex. 1006, 50–52);

- Example that “describes steps to produce Factor C” using the host cell (HEK293) recited in claim 21, *id.* at 15 (citing Ex. 1006, 87);
- Example that “details measuring the residual activity” of Factor C proteins recombinantly expressed in the claimed host cells in the salt solutions (21 mM sodium citrate and 16 mM magnesium sulfate) recited in claim 21, *id.* (citing Ex. 1006, 96–99);
- Results demonstrating that expression of Factor C in the claimed host cells resulted in residual activity falling within the claimed range in the presence of the claimed salt concentrations, *id.* at 16 (citing Ex. 1006, 96–99, 119, 122, Fig. 7).

Patent Owner acknowledges that the Factor C examples in the ’767 application were of *Tachypleus tridentatus*, the Japanese horseshoe crab, rather than that of the claimed *Limulus polyphemus*, or American horseshoe crab. However, Patent Owner argues that an ordinarily skilled artisan would have reasonably understood from the ’767 application disclosures that the inventors possessed the claimed recombinant *Limulus polyphemus* Factor C proteins, because such an artisan would have understood that the species of horseshoe crabs were highly similar. Prelim. Resp. 18.

Patent Owner further asserts that, because claim 21 does not recite a broad genus, Petitioner’s argument that the ’767 application fails to provide

a structural feature correlating to a claimed function is inapposite. Prelim. Resp. 20–21. Instead, Patent Owner asserts, based on the disclosures cited above, that the '767 application provided “sufficient ‘blaze marks’ to guide a reader through the forest of disclosed possibilities’ toward the claimed invention.” Prelim. Resp. 21 (quoting *Pharmacyclics LLC v. Alvogen, Inc.*, No. 2021-2270, 2022 WL 16943006, at *7 (Fed. Cir. Nov. 15, 2022)) (emphasis omitted).

(3) Analysis

Having considered the evidence of record at this preliminary stage of the proceeding, and for the reasons set forth below, we are persuaded that Petitioner has shown sufficiently, for purposes of institution, that the '767 application does not provide adequate written description support for claim 21 of the '318 patent and that, accordingly, Mizumura, the '498 PCT, and McClymont qualify as prior art to the challenged claim.

First, with the possible exception of statements in the “Modes for Carrying Out the Invention” stating that “Factor C of the present invention is [a recombinant protein] derived from a horseshoe crab” and identifying *Limulus polyphemus* as an example of horseshoe crab, Patent Owner has not identified any specific discussion in the '767 application of *Limulus polyphemus* in the context of a recombinant Factor C protein. Although Patent Owner is correct that neither an example nor actual reduction to practice is required to show adequate written description, Prelim. Resp. 14 (quoting *Regeneron Pharms., Inc. v. Mylan Pharms. Inc.*, 127 F.4th 896, 916 (Fed. Cir. 2025)), the '767 application must still “reasonably convey[] to

those skilled in the art that the inventor[s] had possession of the claimed subject matter” as of the relevant date. *Regeneron*, 127 F.4th at 914; *Ariad*, 598 F.3d at 1351.

Patent Owner argues that the ’767 application disclosures, including the examples relating to *Tachyplesus tridentatus*, adequately described challenged claim 21, in view of the similarity between horseshoe crab species. Prelim. Resp. 18. Citing to Tokunaga,⁸ the ’432 publication,⁹ and Alwis,¹⁰ Patent Owner asserts that “skilled artisans had not only successfully isolated and characterized Factor C protein from the *Limulus polyphemus* species well before 2013[,] but also had compared it to Factor C from the *Tachyplesus tridentatus* horseshoe crab.” *Id.* at 18–19.

We acknowledge each of Tokunaga, ’432 publication, and Alwis shows that *Limulus polyphemus* and *Tachyplesus tridentatus* are similar in certain aspects. Tokunaga, for instance, compared the properties of Factor C protein from the two species, including amino acid composition and partial NH₂-terminal sequences, and concluded that “immunological and

⁸ Fuminori Tokunaga et al., *Further Studies on Lipopolysaccharide-Sensitive Serine Protease Zymogen (Factor C): Its Isolation from Limulus polyphemus Hemocytes and Identification as an Intracellular Zymogen Activated by α -Chymotrypsin, Not by Trypsin*, 109 J. BIOCHEMISTRY 150 (1991) (Ex. 1022, “Tokunaga”).

⁹ Chen et al., US 2003/0054432 A1, published Mar. 20, 2003 (Ex. 2035, “’432 publication”).

¹⁰ K. Udeni Alwis & Donald K. Milton, *Recombinant Factor C Assay for Measuring Endotoxin in House Dust: Comparison with LAL, and (1 $\rightarrow$ 3)- β -D-Glucans*, 49 AM. J. INDUS. MED. 296 (2006) (Ex. 2036, “Alwis”).

biochemical properties of the purified factor C [isolated from *L. polyphemus*] are indistinguishable from those of factor C isolated from *Tachypleus* hemocytes.” Ex. 1022, 150–152. Similarly, the ’432 publication states that “[t]ryptic sequencing revealed that the *Limulus* factor C sequence closely matched the Asian species, with >90% sequence identity,” Ex. 2035 ¶ 134, and Alwis teaches that an unpublished study found the Factor C protein of another species of horseshoe crab, *Carcinoscorpius rotundicauda*, to have “89.3% homology with that of *Limulus polyphemus*,” Ex. 2036, 299, right col.

However, Petitioner has pointed to statements by the Patent Owner in its ’498 PCT application — with an earliest possible priority date after 2013 — that, although *Limulus polyphemus* proteins are widely used as a lysate reagent, “[t]here have been no reports of a reagent using recombinant proteins derived from *Limulus polyphemus*.” Ex. 1005 ¶ 9. According to the Patent Owner, the reason for this is that in this species “the proteins and their genes involved in the mechanism of coagulation caused by endotoxin have not been completely identified structurally and functionally.” *Id.* ¶ 10. Patent Owner attributes this failure, more than 20 years after the report of the complete gene and amino acid sequences from, e.g., *Tachypleus tridentatus*, to the diversity between horseshoe crab species, noting that, “due to the various difference and diversity of biomolecules depending on the genus and species of horseshoe crab, it has not been possible to accurately determine the full-length sequence structure, expression, and function of these proteins and genes using conventional methods.” *Id.* ¶ 12.

Patent Owner asserts that '498 PCT “cannot change that, as early as 1991, skilled artisans knew that the ‘immunological and biochemical properties’ of the purified Factor C from *Limulus polyphemus* are ‘**indistinguishable**’ from those of Factor C isolated from *Tachypleus tridentatus*.” Prelim. Resp. 23 (citing Ex. 1022, 150–151, 153).

Nevertheless, we determine that the contrary evidence Petitioner has cited suffices to establish a reasonable likelihood of success at this preliminary stage of the proceeding. In this regard, we also note Dr. Jain’s testimony — currently un rebutted — that an ordinarily skilled artisan would have known, based on Tokunaga’s sequence comparisons of Factor C proteins, that “certain sequence differences between [*Limulus polyphemus*] and *Tachypleus tridentatus* were **non-conservative** (i.e., potentially giving rise to changes in function in terms of enzymatic activity of Factor C).” Ex. 1002 ¶ 94 (citing Ex. 1022, 157). We likewise note Dr. Jain’s testimony that such artisan would have recognized Tokunaga’s conclusion, regarding “immunological and biochemical properties” of Factor C proteins of the two different horseshoe crab species, to be “based on only gross biophysical-biochemical properties” that are not “granular enough” to predict functional properties such as residual activity in presence of specific ions. Ex. 1002 ¶ 100.

Finally, as Petitioner points out, the Specification discloses only a limited number of residual activity values of Factor C proteins in the presence of sodium citrate and magnesium sulfate ions. Pet. 23–24. However, claim 21 encompasses a broader range of residual activity — 10%

or higher and 15% or higher, respectively — in the recited ion solutions. *See, e.g.*, 23–24 (citing Ex. 1006, Fig. 7).¹¹ Patent Owner counters that, in addition to Figure 7 and the associated discussion regarding “[i]nhibition of activity by injection,” the ’767 application discloses that Factor C of the invention can have low susceptibility to inhibition activity by an ion and that specific examples of “low susceptibility” include “residual activity of 10% or higher’ in the presence of 21 mM sodium citrate and ‘a residual activity of 15% or higher’ in the presence of 16 mM magnesium sulfate.” Ex. 1006, 50–52, 99.

Even if the statements cited by Patent Owner were to be considered an *ipsis verbis* disclosure of the residual activity limitations,¹² this does not necessarily satisfy the written description requirement. *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 968 (Fed. Cir. 2002). The relevant

¹¹ Patent Owner asserts, and Petitioner does not appear to dispute, that Figure 7 shows residual activity in 21 mM sodium citrate and 16 mM magnesium sulfate. Prelim. Resp. 15–16; Pet. 23–24; Ex. 1002 ¶ 105.

¹² We note that the relevant passage states that “[s]pecific examples of ‘low susceptibility to inhibition of activity by an ion’ . . . include such a property that the Factor C of the present invention exhibits a residual activity of 10% or higher or 20% or higher in the presence of 21 mM sodium citrate, *as compared with the control Factor C*; . . . [and] such a property that the Factor C of the present invention exhibits a residual activity of 15% or higher or 25% or higher in the presence of 16 mM magnesium sulfate, *as compare with the control Factor C*.” Ex. 1006, 51–52 (emphasis added). The ’767 further states that “[e]xamples of the control Factor C include a recombinant Factor C expressed in insect cell Sf9 and a native Factor C.” *Id.* at 50. Claim 21, however, does not recite any comparison to a control Factor C.

question remains whether “the specification, to the extent possible, . . . describe[s] the claimed invention so that one skilled in the art can recognize what is claimed.” *Id.* In view of evidence of record discussed above, we determine that Petitioner has established a reasonable likelihood, at this preliminary stage of the proceeding, that an ordinarily skilled artisan would not have understood the inventors to be in possession of recombinant Factor C proteins having the full range of residual activities recited in claim 21 (i.e., between 10% and 100% in the presence of 21 mM sodium citrate and between 15% to 100% in the presence of 16 mM magnesium sulfate).

2. Enablement

(1) *Petitioner’s Position*

Petitioner asserts that the ’767 application “does not teach a POSA how to make or use recombinant *Limulus polyphemus* Factor C proteins with any particular residue activity value” without undue experimentation.

Pet. 37. In analyzing the *Wands* factors, Petitioner asserts that (1) claim 21 “broadly encompasses . . . a wide range of values of residual activity in the presence of certain ions; (2) inventors admitted the field had “struggled” to sequence Factor C protein from the recited *Limulus polyphemus* species and “could not make accurate predictions as to its structural and functional properties in view of the biodiversity between horseshoe crab species”; (3) “[t]he ’767 Application provides no guidance . . . on how to control for residual activity,” particularly with respect to Factor C proteins from the *Limulus polyphemus* species, and no working examples involving the claimed Factor C protein; and (4) despite high level of skill in the art,

“making a recombinant Factor C protein with endotoxin detection function **at or above a particular level** was highly speculative” in view of the lack of guidance in the ’767 application and prior art. Pet. 37–42.

In particular, Petitioner emphasizes that claim 21 encompasses recited recombinant *Limulus polyphemus* Factor C proteins with residual activities “anywhere above very low threshold (10% and 15%) when in the presence of defined concentrations of . . . sodium citrate and magnesium sulfate, respectively,” whereas the ’767 application “describes only a single measurement in each ionic solution” — of recombinant Factor C from a different species of crab — and provides no explanation as to why particular residual values were obtained in different expression systems. Pet. 36.

Petitioner asserts, accordingly, that achieving the full scope of claim 21 requires undue experimentation to “discover and characterize the gene and amino acid sequence for *Limulus polyphemus* Factor C itself, which was not known as of 2013,” and (2) “to use this as-yet undiscovered genetic information to recombinantly generate Factor C protein across the full scope of residual activity function characteristic as defined by claim 21.” Pet. 38.

(2) Patent Owner’s Position

Patent Owner similarly analyzes the *Wands* factors but asserts that claim 21 is “**narrowly** confined” to specific horseshoe crab species, specific host cell, and minimum threshold residue activity in specific concentrations of specific salt solutions. Prelim. Resp. 26. Patent Owner further asserts that, in view of the high level of skill and knowledge in the art, the ’767 application sufficiently enables claim 21 by describing how to produce

recombinant Factor C in HEK293 cells and to measure residual activity, and by providing an example where residual activity of such Factor C, as measured in the claimed salt solutions, met the required minimum. *Id.* at 26–27, 33–34.

Patent Owner asserts that, in view of the disclosures in Tokunaga and the '432 publication, no undue experimentation was needed to characterize *Limulus polyphemus* Factor C and express it in HEK293 before 2013. Prelim. Resp. 28–29. Patent Owner cites to the Frohman Declaration,¹³ submitted by a challenger in an Opposition proceeding against Patent Owner's European Patent No. 3530670, as further confirmation that an ordinarily skilled artisan would have been able to obtain cDNA sequence of *Limulus polyphemus* Factor C and to express it “with little difficulty” prior to 2016.¹⁴ *Id.* at 30.

Finally, Patent Owner asserts that no undue experimentation would be needed to achieve “the full scope of residual activity” recited in claim 21 in view of the disclosures in the '767 application discussed above and further in view of the application's identification of *Limulus polyphemus* in the section titled “Modes for Carrying Out the Invention” and disclosure that

¹³ Declaration of Michael A. Frohman, MD, PhD (Ex. 2004, “Frohman Declaration”).

¹⁴ Patent Owner asserts substantial evidence indicates that the Frohman Declaration was submitted on Petitioner's behalf and that, if so, we should view Petitioner's arguments “with extreme skepticism, if not disregard them entirely.” Prelim. Resp. 34–41. Our Decision, however, does not depend on resolution of this issue.

“[its] results ‘indicate that Factor C expressed in mammalian cells can have low susceptibility to activity inhibition by ions.’” Prelim. Resp. 32–33.

(3) Analysis

Having considered the evidence of record at this preliminary stage of the proceeding, and for the reasons set forth below, we are persuaded Petitioner has shown sufficiently, for purposes of institution, that the ’767 application does not enable the full scope of claim 21 of the ’318 patent and that, accordingly, Mizumura, the ’498 PCT, and McClymont qualify as prior art to the challenged claim for this additional reason.

We have discussed the ’767 application disclosures, Tokunaga, and the ’432 publication above in our analysis with respect to written description. The Frohman Declaration states on its face that, in 2016, “the skilled person would have most likely used Rapid Amplification of cDNA Ends (RACE) to obtain the sequence of the cDNA encoding Factor C from *Limulus polyphemus*.” Ex. 2004, 2, ¶ 7. The Frohman Declaration also states on its face that Dr. Frohman developed RACE in 1988 — i.e., before the date of the ’767 patent application — and that “[i]t would have been entirely straightforward for the skilled person to design RACE primers based on the available *Limulus* sequence information listed in [e.g., Tokunaga] and then use any of the available RACE-PCR kits to obtain the full-length cDNA sequence.” *Id.* at 3, ¶ 10, 8, ¶¶ 30–33. The Frohman Declaration further states on its face that “a skilled person charged with the determination of the full-length *Limulus* Factor C sequence before October 18, 2016” would not have expected determining the *Limulus* Factor C sequence using RACE, or

expressing the protein after obtaining the sequence, to be challenging. *Id.* at 1, ¶ 5 (emphasis omitted), 9, ¶¶ 38–39, 10, ¶ 44.

As an initial matter, we note that the Frohman Declaration was submitted in a different proceeding and in a different forum, and our rules contemplate objections to admissibility only after institution. *See* 37 C.F.R. § 42.64(b)(1) (“Any objection to evidence submitted during a preliminary proceeding must be filed within ten business days of the institution of the trial.”); *also compare* Fed. R. Evid. 801(c) (defining hearsay as a statement, not made at the current trial or hearing, “offer[ed] in evidence to prove the truth of the matter asserted”), *with* Fed. R. Evid. 801(d)(2) (excluding from hearsay statement offered against an opposing party where statement was made by “a person whom the party authorized to make a statement on the subject” or by a “party’s agent or employee on a matter within the scope of that relationship and while it existed”). Nevertheless, as discussed above, Petitioner has provided contrary evidence, including statements from Patent Owner’s patent application, suggesting that, “due to the various differences and diversity of biomolecules depending on the genus and species of the horseshoe crab,” it had not been possible “to accurately determine the full-length sequence structure, expression, and function of [*Limulus*] proteins and genes using conventional methods” more than 20 years after complete gene and amino sequences from two *Tachypleus* horseshoe crab species had been reported. Pet. 35 (citing, e.g., Ex. 1005 ¶¶ 12–17). Thus, even if we were to take the Frohman Declaration into account, we find that Petitioner has established a reasonable likelihood

of success that the '767 application disclosures did not enable an ordinarily skilled artisan to make and use the invention of the challenged claim without undue experimentation.

Furthermore, assuming that the disclosures in '767 application would have enabled an ordinarily skilled artisan to express recombinant *Limulus polyphemus* Factor C protein in HEK293, we find Petitioner has established, sufficient for purposes of institution, that the disclosures do not enable an ordinarily skilled artisan to make such a protein exhibiting the “full scope” of the claimed residual activity, without undue experimentation.

Patent Owner cites to disclosures in the '767 application that (1) describe how to produce recombinant Factor C in HEK293 cells and measure residual activity, (2) suggest “Factor C expressed in mammalian cells can have low susceptibility to activity inhibition by ions,” and (3) provide examples where residual activity met the required minimum. Prelim. Resp. 26–27, 32–34. Nevertheless, whether an ordinarily skilled artisan would have been able to make, based on these disclosures and without undue experimentation, a recombinant Factor C protein having residual activity encompassed by claim 21 but higher — even significantly higher — than that achieved in the example, is a fact intensive issue that would benefit from further development during trial.¹⁵ *See, e.g., In re*

¹⁵ Although we agree with Patent Owner that “the law does not require working examples to find enablement,” Prelim. Resp. 26 (citing *Alcon Rsch. Ltd. v. Barr Lab ’ys, Inc.*, 745 F.3d 1180, 1189–1190 (Fed. Cir. 2014)), we do

Fisher, 427 F.2d 833, 839 (CCPA 1970) (concluding, in a claim involving a pharmaceutical preparation, that a claim reciting “potency of ‘at least 1’ render the claims insufficiently supported” where “appellant has not enabled . . . preparation[s] . . . having potencies much greater than 2.3”).

Finally, Patent Owner argues that “the law does not require working examples to find enablement,” and “Petitioner’s assertion that undue experimentation would be required [to practice claim 21 based on the ’767 application disclosures] cannot be squared with the Federal Circuit’s decision in *Wands*,” because the Federal Circuit in *Wands* held the claims to be enabled where “monoclonal antibodies needed to perform the immunoassays can be made from readily available starting materials using

not understand Petitioner’s position to be based solely on the lack of working examples. Neither is this case on all fours with *Alcon*. In that case, unlike here, the claims “merely require that the [method] provide some increase in chemical stability, but do not require a particular level of stability or a particular magnitude of increase.” *Alcon*, 745 F.3d at 1189; *cf. Nuvo Pharms. (Ireland) Designated Activity Company v. Dr. Reddy’s Labs. Inc.*, 923 F.3d 1368, 1383–1384 (noting, in the context of written description, that “when the inventor expressly claims [a] result, our case law provides that that result must be supported by adequate disclosure in the specification”). For similar reasons, Patent Owner’s citation to *Rimfrost AS v. Aker BioMarine Antarctic AS*, No. PGR2018-00033, Paper 9 (P.T.A.B. Aug. 29, 2018), in which the Board denied institution of a post grant review where Petitioner “improperly limited [its] analysis to the examples of the challenged patent” without consideration of other *Wands* factors, is inapposite.

methods that are well known in the monoclonal antibody art.” Prelim. Resp. 25.

This argument is unavailing. In *Wands*, the representative claim recited a method comprising a step of contacting test samples with a monoclonal antibody having at least a certain level of binding affinity for recited antigen determinants. *Wands*, 858 F.2d at 734. Unlike in the instant case, however, there was no dispute in *Wands* that the methods used to prepare hybridomas and to screen them for the recited high-affinity antibodies “were either well known in the monoclonal antibody art or adequately disclosed,” and thus, “[t]he sole issue is whether . . . it would require undue experimentation” to produce the recited antibodies. *Id.* at 736; compare Ex. 1002 ¶ 144 (“Application makes no mention of what logic or protocol a POSA would use to generate recombinant Factor C proteins with the functional characteristics across the full scope of the alleged claimed invention (e.g., 90% or 95%).”).

In view of the evidence discussed above, we find Petitioner has sufficiently established that Mizumura, the ’498 PCT, and McClymont qualify as prior art for purposes of institution. Accordingly, we turn next to whether Petitioner has established a reasonable likelihood that claim 21 is obvious over (1) Mizumura and the ’498 PCT (Ground 1) or (2) Mizumura and McClymont (Ground 2).

F. Obviousness

1. Mizumura and ’498 PCT (Ground 1)

Petitioner has provided charts mapping the disclosures in Mizumura

and/or the '498 PCT to each limitation of claim 21. Pet. 48–52. Petitioner asserts each of Mizumura and the '498 PCT, or their combination, discloses the limitations of “a horseshoe crab Factor C protein having activity of Factor C,” “wherein the horseshoe crab is *Limulus polyphemus*,” and “wherein the horseshoe crab Factor C protein is produced through being recombinantly expressed from a Human Embryonic Kidney (HEK) 293 cell.” *Id.* at 48–51. Petitioner further asserts Mizumura discloses the limitations relating to residual activity, i.e., “wherein the Factor C protein exhibits a residual activity of at least one selected from the group consisting of: (1) 10% or higher in the presence of 21 mM sodium citrate; and (2) 15% or higher in the presence of 16 mM magnesium sulfate.” *Id.* at 51–54.

Petitioner asserts that, by April 30, 2019, an ordinarily skilled artisan would have had reason to use the “full Factor C gene and amino acid sequence for *Limulus polyphemus*” disclosed in '498 PCT “to develop recombinant *Limulus polyphemus* Factor C via HEK293 cells with the ‘residual activity’ described in Mizumura.” Pet. 53; *see also id.* at 56. In particular, Petitioner notes that *Limulus polyphemus* Factor C was widely used in endotoxin assays (LAL); that limitations of LAL — in particular lack of specificity to particular endotoxins and potential for negative effects on horseshoe crab population — had motivated “efforts to generate synthetic versions” of Factor C; and that an ordinarily skilled artisan “would have had reason to maximize endotoxin detection,” including in the presence of inhibitor ions, in order to avoid associated adverse events. *Id.* at 53–56 (citing, e.g., Ex. 1002 ¶¶ 163–177).

Petitioner asserts that, by April 2019, an ordinarily skilled artisan “would have reasonably expected to successfully generate recombinant Factor C of the *Limulus polyphemus* species via HEK293 cells where that recombinant Factor C has a residual activity falling within the range defined in claim 21.” Pet. 80. Petitioner asserts that such reasonable expectation stems at least from (1) disclosures in the ’498 PCT of how to recombinantly produce *Limulus polyphemus* Factor C protein in a mammalian expression system using known amino acid sequence; (2) overall similarities between full-length amino acid sequence for *Limulus polyphemus* and *Tachypleus tridentatus* leading to expectation that the two will be “comparable in terms of residual activity”; and (3) inventor’s testimony during the prosecution of applications in the ’318 patent family. Pet. 57–60 (citing, e.g., Ex. 1002 ¶¶ 178–191).

2. Mizumura and McClymont (Ground 2)

Petitioner asserts that, “[a]s with the ’498 PCT, McClymont discloses the full cDNA and amino acid sequence for *Limulus polyphemus* Factor C protein and discloses expressing such protein using several common expression systems (including yeast and insect cells).” Pet. 60–61 (citing Ex. 1010, 84–96, 159–60 (App. B)). Petitioner relies on the same reasoning discussed above for Ground 1 to argue that an ordinarily skilled artisan would have had reason to use the sequence information from McClymont “to generate a recombinant Factor C protein of the *Limulus polyphemus* species in HEK293 cells as disclosed for *Tachypleus tridentatus* in Mizumura, and would have reasonably expected the resulting proteins to

have residual activity described in Mizumura and falling within the claimed range.” *Id.* at 61 (citing Ex. 1002 ¶ 192).

3. Secondary Considerations

Petitioner acknowledges Patent Owner offered two declarations from Dr. Mizumura during prosecution of the ’318 patent, dated January 8 and August 11, 2021, “arguing that unexpected results associated with the invention rebutted the Examiner’s *prima facie* case of obviousness.” Pet. 61 (citing Ex. 1004, 83, 150).

However, Petitioner asserts the January 8, 2021 Declaration purports to demonstrate superior results from *Tachpleus tridentatus* Factor C recombinantly produced in CHO DG44 cells and thus provides no evidence of unexpected results with respect to *Limulus polyphemus* Factor C protein recombinantly expressed from HEK293 cells, as recited in claim 21. Pet. 62 (citing Ex. 1002 ¶¶ 196–199).

Petitioner asserts that the majority of additional data discussed in the August 11, 2021 Declaration is also not relevant to any unexpected properties of the claimed proteins for similar reasons. Pet. 62–63 (citing, e.g., Ex. 1002 ¶¶ 200–202). With respect to the “Inhibition data” purporting to show “salt tolerance of *Limulus* Factor C produced by HEK 293 cell [mammalian] is superior to LAL and *L. polyphemus* Factor C recombinantly produced by using Sf9 cell [insect] as a host,” Petitioner asserts that the Declaration fails to show that this result is unexpected, especially when compared to the closest prior art; that the protocols used in the tests are sufficiently similar to provide valid comparisons; or that any differences in

residual activity are differences in kind rather than of degree. *Id.* at 63–64 (citing, e.g., Ex. 1002 ¶¶ 200–206).

4. Patent Owner’s Position

With respect to Petitioner’s obviousness grounds, and at this preliminary stage of the proceeding, Patent Owner argues only that “Petitioner’s obviousness argument[s] hinge[] on its assertion that the ’318 Patent is not entitled to its earliest priority date,” and that Petitioner has failed to make this showing. Prelim. Resp. 41. Patent Owner likewise did not rely on evidence or arguments relating to secondary considerations of non-obviousness in the Preliminary Response. *Id.* at 42.

5. Analysis

As discussed above, we find Petitioner has established a reasonable likelihood that claim 21 is not entitled to a priority date of December 10, 2013. Patent Owner has not argued that claim 21 is entitled to any other effective filing date earlier than April 30, 2019. Accordingly, we determine that Mizumura, the ’498 PCT, and McClymont qualify as prior art for purposes of institution.

Furthermore, having considered the arguments and evidence presented by Petitioner, including the presently unrebutted testimony of Dr. Jain, we are persuaded Petitioner has shown a reasonable likelihood that claim 21 is obvious over (1) Mizumura in view of ’498 PCT and (2) Mizurmura in view of McClymont and institute *inter partes* review on both grounds.

III. CONCLUSION

For the reasons provided above, we institute *inter partes* review based on all the Grounds presented in the Petition.

We emphasize our determination in this Decision is not a final determination on the construction of any claim term or the patentability of any challenged claim and, thus, leaves undecided any factual issues necessary to determine whether sufficient evidence supports Petitioner's contentions by a preponderance of the evidence in the final written decision. *See TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (noting that "there is a significant difference between a petitioner's burden to establish a 'reasonable likelihood of success' at institution, and actually proving invalidity by a preponderance of the evidence at trial") (quoting 35 U.S.C. § 314(a) and comparing § 316(e)).

The Board will deem forfeited any issue not raised by Patent Owner in a timely response to the Petition, or as permitted in another manner during trial, even if asserted in the Preliminary Response or discussed in this Decision.

Nothing in this Decision authorizes Petitioner, in a manner not otherwise permitted by the Board's rules, to supplement the information pertaining to any ground advanced in the Petition.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claim 21 of U.S. Patent No. 11,236,318 B2 is instituted with respect to all grounds set forth in the Petition; and

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, which will commence on the entry date of this decision.

IPR2025-00440
Patent 11,236,318 B2

FOR PETITIONER:

Scott McKeown
Flora Luo
WOLF, GREENFIELD & SACKS, P.C.
smckeown-ptab@wolfgreenfield.com
fluo-ptab@wolfgreenfield

FOR PATENT OWNER:

Alexander Stein
Christopher Betti
MORGAN, LEWIS & BOCKIUS LLP
alexander.stein@morganlewis.com
christopher.betti@morganlewis.com