United States Court of Appeals for the Federal Circuit

BASF PLANT SCIENCE, LP,
Plaintiff-Appellant

v.

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION,
Defendant-Cross-Appellant

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION, GRAINS RESEARCH AND DEVELOPMENT CORPORATION, NUSEED PTY LTD.,
Plaintiffs-Counterclaimants-Cross-Appellants

v.

BASF PLANT SCIENCE, LP, CARGILL, INC.,
Defendants-Counterdefendants-Appellants

BASF PLANT SCIENCE GMBH,
Counter-Counterclaimant-Appellant

2020-1415, 2020-1416, 2020-1919, 2020-1920

Appeals from the United States District Court for the Eastern District of Virginia in No. 2:17-cv-00503-HCM-LRL, Senior Judge Henry C. Morgan Jr.

Decided: March 15, 2022

CATHERINE EMILY STETSON, Hogan Lovells US LLP, Washington, DC, argued for BASF Plant Science, LP, BASF Plant Science GmbH. Also represented by ANNA KURIAN SHAW; NITYA ANAND, JASON ALBERT LEONARD, New York, NY; N. THOMAS CONNALLY, III, Tysons, VA.

WILLIAM M. JAY, Goodwin Procter LLP, Washington, DC, argued for Commonwealth Scientific and Industrial Research Organisation, Grains Research and Development Corporation, Nuseed Pty Ltd. Also represented by JORDAN BOCK, ALEXANDRA LU, ANDREW S. MCDONOUGH, DAVID ZIMMER, Boston, MA; ALEXANDRA D. VALENTI, New York, NY. Commonwealth Scientific and Industrial Research Organisation also represented by MICHAEL NG, DANIEL AMON ZAHEER, Kobre & Kim LLP, San Francisco, CA.

AHMED JAMAL DAVIS, Fish & Richardson PC, Washington, DC, argued for Cargill, Inc. Also represented by DANIEL GOPENKO; CHRISTOPHER ROBERT DILLON, Boston, MA; ELIZABETH M. FLANAGAN, Minneapolis, MN.

Before NEWMAN, TARANTO, and CHEN, *Circuit Judges*.

Opinion for the Court filed by *Circuit Judge* TARANTO.

Opinion dissenting in part filed by *Circuit Judge* NEWMAN.

TARANTO, *Circuit Judge*.

Commonwealth Scientific and Industrial Research Organisation (CSIRO), a research arm of the Australian government, owns six U.S. patents that are at issue before us. The parties treat four patents under the name "Group A":

Nos. 9,926,579; 9,951,357; 9,970,033; and 9,994,880. They treat separately the two other patents at issue, Nos. 9,994,792 and 9,932,541 (once part of "Group B" and "Group D," respectively). The claims concern the engineering of plants, particularly canola, to produce specified oils not native to the plants. CSIRO has worked with Nuseed Pty Ltd. and Grains Research and Development Corporation to commercialize its inventions.

In 2017, BASF Plant Science, LP (BASF) sued CSIRO, Nuseed, and Grains Research in the Eastern District of Virginia, seeking a declaratory judgment limited to certain CSIRO patents other than the six now at issue. In 2018, after BASF amended its complaint to name only CSIRO, CSIRO filed an answer (for itself) along with counterclaims (for itself, Nuseed, and Grains Research) asserting infringement of the six patents now at issue and adding Cargill, Inc. (BASF's commercialization partner) as a counterclaim defendant. In 2019, BASF Plant Science GmbH entered as a party (hereinafter included within "BASF"), and BASF asserted, as an infringement defense, that it co-owned the asserted patents by virtue of a 2008 contract between it and CSIRO. Cargill soon sought dismissal of the counterclaims against it for lack of personal jurisdiction and improper venue in the Eastern District of Virginia, but the district court denied its motions. *BASF Plant Science, LP v. Commonwealth Scientific & Industrial Research Organisation* [hereinafter *BASF v. CSIRO*], No. 2:17-cv-503, 2019 WL 2017541, at *2–5 (E.D. Va. May 7, 2019) (*Venue Opinion*).

With the array of parties set, the case proceeded to trial on eight claims of the six patents at issue now, with the trial bifurcated into liability and remedy phases. Putting aside the co-ownership defense, the parties stipulated to infringement of the asserted claims of five of the patents, and the jury found infringement of the asserted claim of the sixth (the '541 patent). J.A. 24. The jury also rejected the invalidity challenges, including the challenge that the

six asserted Group A patent claims lacked adequate written-description support. J.A. 25–26. As to the co-ownership defense to infringement, the jury found that BASF co-owned the '792 patent (precluding infringement of that patent) but not the other patents. J.A. 27. Willfulness was not decided by the jury, the district court having ruled that the evidence would not support a finding of willfulness. *BASF v. CSIRO*, No. 2:17-cv-503, 2020 WL 973751, at *10–11 (E.D. Va. Feb. 7, 2020) (*Pre-Verdict Motions Opinion*). For the remedy phase, a jury was convened to assess past damages, but it was discharged following an evidentiary ruling concerning a proffer by CSIRO. J.A. 10568–89. After a bench trial concerning remedies, the district court denied a conduct-stopping injunction but granted an ongoing royalty on all five patents found infringed. *BASF v. CSIRO*, No. 2:17-cv-503, 2019 WL 8108116, at *16, *21, *27 (E.D. Va. Dec. 23, 2019) (*Remedies Opinion*).

BASF and Cargill (for simplicity, "Appellants"), on one side, and CSIRO and its commercialization partners ("Cross-Appellants"), on the other, now appeal. Appellants together appeal the jury's verdicts of (1) adequate written description of the asserted Group A patent claims and (2) no BASF co-ownership of the five patents other than the '792 patent. Cargill appeals the district court's determination that venue was proper for Cargill. On the other side, Cross-Appellants appeal the jury's verdict that BASF co-owned the '792 patent. They also appeal several rulings by the district court that limited the remedy granted: (1) the refusal to submit willfulness to the jury; (2) a ruling on an issue about Cross-Appellants' past-damages evidence that led the court to give no damages issue to the jury; (3) the denial of an infringement-stopping injunction, with the prospective remedy limited to an ongoing royalty; and (4) the calculation of that royalty.

We hold as follows. First, we affirm the district court's determination that venue as to Cargill was proper in the Eastern District of Virginia. Second, regarding the jury's

verdict rejecting the written-description challenge to the asserted Group A patent claims, we affirm as to the claims that are limited to canola plants (the only ones either side meaningfully discusses), but we reverse as to the broader genus claims. Third, we affirm the jury's verdict that five patents were not co-owned by BASF but reverse the contrary verdict as to the sixth, with the result that infringement of all valid claims of the six patents at issue is now settled. Finally, on the remedy issues, we affirm the district court's refusal to submit willfulness to the jury and its decision on the evidentiary issue concerning past damages. But we remand for reconsideration of the remedy, while leaving the current remedy in place pending such reconsideration.

I

A

Certain facts that we accept in the current posture of the case supply background to the legal disputes before us. Omega-3 long-chain polyunsaturated fatty acids (LC-PUFAs)—specifically, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA)—can be beneficial to human health. *See, e.g.*, '579 patent, col. 1, lines 59–61, col. 2, lines 5–25. The main source of LC-PUFAs in the human diet has traditionally been certain fish, such as salmon and mackerel, that in the wild ingest LC-PUFAs in their natural diet. *Id.*, col. 2, lines 5–10; J.A. 8467–70. When farm-raised, however, those fish must be fed supplements to acquire LC-PUFAs. J.A. 8477. Other oily fish caught in the wild can provide the LC-PUFA-rich oil for the supplements, but the supply of such fish was seen as undesirably low and volatile. J.A. 8477–81. The aquafeed industry therefore began exploring genetic modification of familiar oilseed crop plants, such as canola (also known as *Brassica napus* or rapeseed), to get them to produce LC-PUFA-rich oil that could be fed to farm-raised fish. J.A. 8481–83; '579 patent, col. 2, lines 32–35; *Remedies Opinion*, 2019 WL

8108116, at *1 n.2. Around 2000, both CSIRO and BASF were pursuing that goal.

CSIRO was working toward getting land plants to use a Δ6-desaturase pathway for that purpose, which required inserting a series of genes drawn from other organisms (like microalgae or yeast) to encode enzymes (certain elongases and desaturases) not native to land plants. J.A. 8568–75; J.A. 8595. The theory was that introducing Δ6-desaturase pathway enzymes would allow the plants to transform a *short*-chain fatty acid they already could make (alpha-linolenic acid or ALA) into the desired *long*-chain PUFAs: EPA and DHA. *See* J.A. 8593–94. CSIRO achieved the production of LC-PUFAs in a laboratory oilseed plant called *Arabidopsis*, J.A. 8602–08; J.A. 8963–82, and in 2004 it began filing provisional patent applications on the so-called "blueprint," *i.e.*, the series of genes that encode enzymes for each step in the Δ6-desaturase pathway, *see* J.A. 11107–337; J.A. 11608–92. CSIRO did not immediately implement the blueprint in canola plants; instead, according to its trial evidence, CSIRO kept working with the laboratory-friendly plants to explore implementation choices relevant to producing the oil in quantities needed for ultimate commercialization. *See, e.g.*, J.A. 9830–40; J.A. 9979–81.

BASF was also researching the Δ6-desaturase pathway in land plants. By 2002, BASF produced EPA in *Arabidopsis*, tobacco, and linseed (a crop plant also known as flax), and it did the same for DHA in *Brassica juncea* (another crop plant, closely related to canola) by 2004. J.A. 9283–85. By 2006, BASF had decided to pursue producing LC-PUFAs in canola. J.A. 9504–05. Before 2007, BASF had made public several of the genes it was using. *See, e.g.*, J.A. 12687–92; J.A. 12607–14.

By 2007, CSIRO and BASF were discussing a focused collaboration, which they began the next year. Although both CSIRO and BASF were working on a Δ6-desaturase

pathway in canola, they were using (and had commercial rights to) different genes. For example, CSIRO was using a gene from *Pavlova salina* to code for the Δ5-desaturase enzyme of the pathway, while BASF was using one from *Thraustochytrium* ssp. J.A. 12675; J.A. 12678. Hoping that a combination of their genes would "further enhanc[e] the levels of LC-PUFAs . . . EPA and DHA in canola," J.A. 12665, BASF and CSIRO entered into a two-year Materials Transfer and Evaluation Agreement (MTEA), J.A. 12664–86, with work to commence March 1, 2008, to "evaluate levels of EPA and DHA accumulated in T2 seed of canola plants expressing a *combination of both CSIRO and [BASF] genes*," J.A. 12665; J.A. 12681 (emphasis added). The MTEA's Schedule B lists 13 specific combination constructs for study, each construct containing six to eight genes, at least one an identified CSIRO gene and at least one an identified BASF gene. J.A. 12681–84.

The CSIRO and BASF collaboration under the MTEA ended in 2010. J.A. 12665–67; J.A. 9134–39; J.A. 11841. In December 2010, CSIRO partnered with another Australian government entity, Grains Research, and the private company Nuseed, granting Nuseed an exclusive license to CSIRO's LC-PUFA technology and patents. J.A. 8460; J.A. 8489–96; J.A. 10034–35; J.A. 11346–47. Together, CSIRO and its partners worked toward marketing products called Aquaterra® (fish feed for farm-raised fish) and Nutriterra® (a dietary supplement for human consumption). J.A. 8506–13. BASF, on the other hand, entered into an agreement with the private company Cargill in April 2011, with each party assigned certain responsibilities. J.A. 12763. BASF developed a LC-PUFA-producing canola seed line called LFK and used it to apply for required regulatory approvals, and Cargill used that line in cross-breeding work to eventually develop a commercial seed oil product called Latitude. *See Remedies Opinion*, 2019 WL 8108116, at *7–10; J.A. 12763. As part of the joint project, in November 2014 and July 2015, BASF deposited seeds with the American

Type Culture Collection (ATCC) in Manassas, Virginia, to support BASF's patent applications. J.A. 13208–13; *see also* J.A. 2758–59.

B

1

After the MTEA ended, and after acquiring their own separate commercialization collaborators, as described above, BASF and CSIRO negotiated for BASF to take a license to CSIRO's LC-PUFA technology, but the negotiations broke down in 2016. In October of that year, CSIRO's collaborator Nuseed sent Cargill a letter listing a number of CSIRO's patents (not including the patents now at issue) and inviting Cargill "to a broad discussion of the patents in the omega-3 area and an exploration of potential future paths in this space for Cargill and Nuseed." J.A. 14366–67. In April 2017, BASF sued Nuseed in the District of Delaware, seeking a declaratory judgment that BASF did not infringe certain CSIRO patents listed in the October 2016 letter. But the District of Delaware dismissed that case for lack of jurisdiction.

The present case began on September 19, 2017, when BASF filed a declaratory-judgment action in the Eastern District of Virginia against CSIRO, Nuseed, and Grains Research (hereinafter referred to collectively as "CSIRO" unless the context indicates otherwise). BASF filed an amended complaint in this case on April 20, 2018. On August 31, 2018, CSIRO filed an answer along with infringement counterclaims against both BASF and Cargill (hereinafter referred to collectively as "BASF" unless the context indicates otherwise). J.A. 2837–978. That filing introduced into this case the six patents now at issue (plus two others). J.A. 2944–77. In response to CSIRO's counterclaims asserting these new patents, in September 2018, BASF filed an answer and its own (counter-)counterclaims against CSIRO addressing these patents. Subsequently, in January 2019, CSIRO amended its counterclaims against

BASF and Cargill; and when BASF answered the amended counterclaims, it (now including BASF Plant Science, GmbH) asserted for the first time that it co-owned the relevant patents under the terms of the MTEA.

2

At issue on appeal are eight claims from six patents—the four Group A patents, the '792 patent, and the '541 patent. Other claims from other patents were once at issue, including one at trial, but no longer are.

The four Group A patents, which share a specification, issued between March and June of 2018 (after this litigation began) on applications filed in 2016–2017 that traced priority back to CSIRO's 2004 Provisional Application Nos. 60/564,627 and 60/613,861. '579 patent, title page, col. 1, lines 5–31; '357 patent, title page, col. 1, lines 5–29; '033 patent, title page, col. 1, lines 5–31; '880 patent, title page, col. 1, lines 5–31. The asserted claims of these patents address the blueprint—the genes that encode enzymes to carry out the steps of the Δ6-desaturase pathway—as well as implementations of that blueprint in plant seeds generally, and in canola specifically. *See, e.g.*, '579 patent, col. 215, lines 48–51; '357 patent, col. 215, lines 15–28.

Claim 1 of the '357 patent recites the following, not limited to canola:

> 1. A recombinant plant cell which synthesises eicosapentaenoic acid (EPA), comprising more than one heterologous polynucleotide, wherein said polynucleotides encode:
>
> a) a Δ6 desaturase, a Δ6 elongase and a Δ5 desaturase; or
>
> b) a Δ5/Δ6 bifunctional desaturase and a Δ5/Δ6 bifunctional elongase;
>
> wherein the more than one polynucleotides are operably linked to one or more

> promoters that are capable of directing expression of said polynucleotides in the cell, wherein the enzymes encoded by said polynucleotides comprise at least one desaturase which is able to act on an acyl-CoA substrate, and wherein the synthesis of EPA requires the sequential action of said enzymes.

'357 patent, col. 215, lines 15–28. Also asserted from the same patent is claim 33, which depends on claims 1, 31, and 32. The relevant claims read:

> 31. The plant cell of claim 1 which is a *Brassica napus* cell or *Arabidopsis thaliana* cell, wherein the heterologous polynucleotides encode a Δ6 desaturase, Δ6 elongase and a Δ5 desaturase.
>
> 32. The cell of claim 31, comprising a heterologous polynucleotide encoding a Δ5 elongase which catalyses the conversion of EPA to DPA [docosapentaenoic acid] in the cell.
>
> 33. The plant cell of claim 32, wherein said cell is capable of synthesising DHA.

Id., col. 217, lines 17–25; J.A. 1405 (certificate of correction). Claim 33, through claim 31, requires either the named *Arabidopsis* plant or "canola." *See Remedies Opinion*, 2019 WL 8108116, at *1 n.2 ("'Canola' refers to certain plants (and oil derived therefrom), principally *Brassica napus* more commonly known as rapeseed."); '579 patent, col. 11, line 7; *id.*, col. 39, line 67.

Group A also includes asserted claim 5 of the '579 patent and claim 5 of the '033 patent, each limited to canola. Claim 5 of the '579—which depends on a chain of claims reaching back to independent claim 1, which recites a *Brassica* plant cell for producing DPA and DHA that includes polynucleotides encoding a Δ5 elongase and an identified Δ4 desaturase, along with an exogenous desaturase—

claims a "process for producing DPA and DHA" by obtaining a specified "*Brassica napus* seed" and "extracting triacylglycerols from the seed." '579 patent, col. 215, lines 29–51. In a similar vein, claim 5 of the '033 patent—which depends on a chain reaching back to independent claim 1, which recites a plant cell for producing DPA and DHA that includes polynucleotides encoding a Δ4 desaturase, an identified Δ5 desaturase, a Δ6 desaturase, and a Δ5/Δ6 bifunctional elongase—claims a "*Brassica napus* plant seed" that includes an exogenous desaturase. '033 patent, col. 213, line 57, through col. 215, line 6.

Finally, Group A includes asserted claims 2 and 10 of the '880 patent, which, like the '357 patent's claim 1, are *not* limited to canola. '880 patent, col. 217, lines 26–28, 51–52. Both claims depend (directly or indirectly) on claim 1, which recites a "recombinant nucleic acid molecule" that includes polynucleotides encoding a Δ5/Δ6 bifunctional desaturase and a Δ6 elongase, both polynucleotides operably connected to a promoter that directs their expression in "a plant seed." *Id.*, col. 217, lines 15–25. Claim 2 claims the nucleic acid molecule of claim 1 "wherein the Δ5/Δ6 bifunctional desaturase catalyses desaturation of an acyl-CoA substrate." *Id.*, col. 217, lines 26–28. Claim 10 claims a plant cell comprising the nucleic acid molecule of claim 1 and exogenous polynucleotides encoding a Δ5 elongase and a *Pavlova* Δ4 desaturase. *Id.*, col. 217, lines 34–52.[1]

Two patents outside Group A are at issue. One is the '792 patent, which issued in June 2018 from a 2017

---

[1] For the Group A claims, we refer to claim 33 of the '357 patent, claim 5 of the '579 patent, and claim 5 of the '033 patent as the "canola claims" and to claim 1 of the '357 patent and claims 2 and 10 of the '880 patent as the "broader genus claims." In these shorthand labels, we omit mention of certain claims' coverage of *Arabidopsis*, as to which no written-description challenge is presented.

application tracing priority back to 2008. '792 patent, title page, col. 1, lines 4–13. Independent claim 1 (not asserted here) is specific to canola, claiming a "*Brassica napus* cell" comprising exogenous polynucleotides that encode an identified Δ6 desaturase, a Δ6 elongase, an identified Δ5 desaturase, an identified Δ5 elongase, and an identified Δ4 desaturase.

> 1. A *Brassica napus* cell, comprising exogenous polynucleotides encoding
>
> a Δ6 desaturase whose amino acid sequence is set forth as SEQ ID NO: 30,
>
> a Δ6 elongase,
>
> a Δ5 desaturase whose amino acid sequence is identical to the amino acid sequence encoded by the nucleotide sequence set forth as SEQ ID NO: 131,
>
> a Δ5 elongase whose amino acid sequence is at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 130, and
>
> a Δ4 desaturase whose amino acid sequence is identical to the amino acid sequence encoded by the nucleotide sequence set forth as SEQ ID NO: 132,
>
> wherein each exogenous polynucleotide is operably linked to a promoter that directs expression of said polynucleotide in the cell.

Id., col. 241, lines 38–54. Dependent claim 4, the sole asserted claim of the '792 patent, claims a seed including a seed cell of claim 1. *Id.*, col. 241, lines 61–62.

The final patent at issue is the '541 patent, which issued in April 2018 from a 2017 application tracing priority back to 2012. '541 patent, title page, col. 1, lines 8–18. It is specific to canola and *Arabidopsis*. Independent claim 15 (not asserted here) claims "[o]il extracted from seeds which are *Brassica napus* or *Arabidopsis thaliana* seeds,"

where the oil comprises fatty acid content meeting a long list of specifications, including some involving the presence of EPA and DHA. *Id.*, col. 373, line 38, through col. 374, line 22. Dependent claim 20, the sole asserted claim of the '541 patent, claims the oil of claim 15 with further specification of a DHA requirement. *Id.*, col. 374, lines 35–37.

It is not disputed that the asserted claim of the '541 patent reads on BASF's LFK (regulatory) seed line and all other asserted claims read on BASF's LFK (regulatory) and Latitude (commercial) seed lines. *Remedies Opinion*, 2019 WL 8108116, at *8–10; Appellants' Opening Br. 16–17.

C

On October 31, 2018, Cargill moved to dismiss CSIRO's counterclaims for lack of personal jurisdiction and improper venue pursuant to Federal Rules of Civil Procedure 12(b)(2) and 12(b)(3). J.A. 3598–99. On May 7, 2019, the district court denied both of Cargill's motions to dismiss. *Venue Opinion*, 2019 WL 2017541, at *2–5.

In finding personal jurisdiction, which is not at issue here, the district court found several facts relevant to the venue question, which is at issue here. In particular, it found that the agreement between BASF and Cargill "amounts to a partnership" and "when BASF deposited the seeds with the ATCC in this District and filed suit in this District, it brought matters central to that partnership into this Court's jurisdiction." *Id.* at *3 & n.2 (citing Va. Code. Ann. § 50-73.88(A); 59A Am. Jur. 2D *Partnership* § 131). It added that CSIRO's counterclaims related to activities in which BASF "act[ed] on behalf of itself and Cargill." *Id.* at *4.

In finding venue proper, the district court determined that Cargill both "committed acts of infringement and ha[d] a regular and established place of business" in the Eastern District of Virginia, with only the infringing-acts element of § 1400(b) disputed by Cargill. *Id.* at *4–5

(quoting 28 U.S.C. § 1400(b)). On that element, the court found that BASF's deposit of seeds with the ATCC in Manassas, Virginia, was a "use" under 35 U.S.C. § 271(a) that was "attributable to Cargill given the partnership and close connection of the entities." *Id.* at *5 (citing *Minnesota Mining & Manufacturing Co. v. Eco Chem, Inc.*, 757 F.2d 1256, 1265 (Fed. Cir. 1985); *Master Tech Products, Inc. v. Smith*, 181 F. Supp. 2d 910, 914 (N.D. Ill. 2002)). On that basis, the court denied Cargill's motion to dismiss for improper venue. *Id.*

D

The case proceeded to a trial in October and November 2019, bifurcated into liability and remedy phases. Before the liability issues were submitted to the jury, the district court ruled on motions for judgment as a matter of law under Federal Rule of Civil Procedure 50(a), elaborating on its reasoning in a post-trial opinion. The court found triable issues regarding co-ownership of the six patents now at issue and regarding the adequacy of written-description support for the seven claims challenged on that ground (all but the '541 patent's claim 20). *Pre-Verdict Motions Opinion*, 2020 WL 973751, at *7–10. On willfulness, however, the district court determined that there was no triable issue. *Id.* at *10–11. The court noted that (1) the parties had engaged in licensing negotiations and, when the negotiations failed, BASF brought suit to determine if its conduct was infringing; (2) BASF and Cargill were never presented with a cease-and-desist letter on the patents at issue (which Nuseed's October 2016 letter did not mention), and none of the six patents now in dispute even issued to CSIRO until after BASF filed its first declaratory judgment action in Delaware;[2] (3) the first and only

[2] The district court stated that seven of the eight patents at issue at trial post-dated that filing. *Pre-Verdict Motions Opinion*, 2020 WL 973751, at *11. In addition to

commercialization was Cargill's 2018 seed crop; and (4) BASF had presented several good-faith validity and enforceability defenses and had a good-faith belief that it co-owned the patents under the MTEA. *Id.* As a result, the district court refused to submit willfulness to the jury, adding that, in any event, it would not enhance damages even if the jury were given the issue and found for CSIRO. *Id.* at *11.

On November 1, 2019, the jury returned its verdict on liability. It found infringement of claim 20 of the '541 patent, the only claim for which infringement was disputed. J.A. 24. BASF had stipulated to infringement of the other asserted claims. J.A. 24. As relevant here, the jury rejected BASF's obviousness challenge and its written-description challenge (asserted for all claims except claim 20 of the '541 patent). J.A. 25–26. And the jury found that BASF did co-own the '792 patent (defeating infringement as to that patent) but not any of the others. J.A. 27.

E

The next step was the remedy trial for the seven claims (of five patents) found to be infringed and not invalid. Although a jury was originally supposed to address relief for pre-verdict infringement—specifically, damages for

---

the six patents still at issue now, two additional patents were part of the trial. One of those, U.S. Patent No. 7,642,346, issued in 2010, well before the BASF-CSIRO litigation began, but that patent did not go to the jury because the district court held the only asserted claim of that patent not to be infringed as a matter of law. *Id.* at *2–3. The other patent not at issue here but part of the trial was U.S. Patent No. 10,125,084, which issued in November 2018, after BASF filed its Delaware action in April 2017. The jury found the sole asserted claim of the '084 patent invalid for lack of an adequate written description. J.A. 26.

Cargill's one instance of infringement in 2018—the court dismissed the jury when CSIRO withdrew its past-damages request after the district court ruled on a dispute concerning the admissibility of CSIRO's proffered evidence of projected sales and profits to establish a reasonable royalty rate for past infringement. *Remedies Opinion*, 2019 WL 8108116, at *6; J.A. 10568–89. The court added that a jury determination based on CSIRO's evidence "would not be of value to the Court in fixing an ongoing royalty finding for future damages." *Remedies Opinion*, 2019 WL 8108116, at *6. With the jury discharged, the district court conducted a bench trial on remedies for post-verdict infringement.

Concerning permanent injunctive relief to stop the infringing conduct, the district court concluded that CSIRO failed to meet its burden on any of the four requirements described in *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006). First, the court found no irreparable harm, determining that CSIRO did not prove that allowing BASF and Cargill to go to market with Latitude within the life of the Group A patents would cause CSIRO to lose a first-mover advantage, research and development opportunities, or customer relationships, or would cause profit erosion. *Remedies Opinion*, 2019 WL 8108116, at *17–18. Indeed, the court found that CSIRO "ha[d] no formal or even informal plans for going to market." *Id.* at *10–11, *17. Second, the court found the inadequacy of legal remedies unproven, determining that "there [was] insufficient evidence that [CSIRO has] lost, or will lose, market share, customers, market advantages, or favorable pricing." *Id.* at *18–19. Additionally, the court found that CSIRO had been open, at least as of late 2017, to license its technology to BASF and Cargill and that CSIRO's remedies expert admitted that negotiations would likely continue if an injunction were issued. *Id.* Third, the court found that the harm to BASF and Cargill of an injunction curtailing infringing conduct outweighed the harm to CSIRO of not granting such an injunction, pointing to the investment BASF and

Cargill had already made and noting that it was "not persuaded that Cargill's presence in the underserved fish food market should deter Nuseed from going to market when and if it is prepared to do so." *Id.* at *19–20. Finally, the district court decided that "an injunction would clearly harm the public." *Id.* at *20–21. More specifically, the court found that, even if *both* Nuseed and Cargill entered the market as projected, "at most 45% of the market demand shortfall for all fish food products could be met," so to keep Cargill off the market would "disserve[] the public interest, because to do so would needlessly cause its contribution to market demand [to go] unmet." *Id.* at *20 (also noting that "[i]f, as predicted, there are continuing interruptions of the supply of oily fishes for salmon food the public will benefit from the presence of multiple sources of LC-PUFAs from canola or other potential plants"). Accordingly, the court denied CSIRO's motion for a permanent injunction to stop the infringing conduct. *Id.* at *21.

The district court determined it should instead impose on BASF and Cargill an obligation to pay an ongoing royalty for future infringement—rejecting CSIRO's suggestion that, if no infringement-stopping injunction was issued, the court should grant no relief for future infringement, leaving CSIRO to seek backward-looking compensation for that infringement after it occurred. *Id.* In determining the proper ongoing royalty, the district court first found three licensing agreements offered by BASF and Cargill's remedies expert to be "sufficiently comparable to establish a starting point for hypothetical negotiations dealing with the substance of the inventions in this case," while rejecting the use of two other licenses asserted to be comparable by CSIRO's remedies expert. *Id.* at *14–16, *24. The court then adjusted the adopted starting point—a lump-sum payment of $1,235,000 with a 1.4% royalty rate—based on the so-called *Georgia-Pacific* factors that we and other courts have often found pertinent to royalty determinations. *Id.* at *24–27; *see, e.g.*, *Whitserve, LLC v. Computer*

Packages, Inc., 694 F.3d 10, 27 & n.11 (Fed. Cir. 2012). The court ordered BASF and Cargill (1) to make a lump-sum payment of $3,705,000, (2) to pay a running royalty at a rate of 3.5% on the gross sales of Latitude for infringement of the Group A patents, and (3) to pay a running royalty at a rate of 3.5% of the gross sales (if any) of LFK for infringement of the '541 patent. *Remedies Opinion*, 2019 WL 8108116, at *27. The court entered its *Remedies Opinion* and accompanying judgment on December 23, 2019. J.A. 83.

F

Three weeks earlier, CSIRO had filed motions for judgment as a matter of law and a new trial under Federal Rules of Civil Procedure 50(b) and 59(a), and additional such motions from both sides were filed in January 2020. On May 5, 2020, the district court denied all motions for reasons read on the record on that day, J.A. 137, and elaborated in written opinions on September 3, 2020, and October 7, 2020, *BASF v. CSIRO*, No. 2:17-cv-503, 2020 WL 5250575 (E.D. Va. Sept. 3, 2020) (*Post-Trial Motions Opinion*); J.A. 156–63.

Both sides timely appealed. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

II

Cargill, not joined by BASF, appeals the district court's rejection of its venue objection. Cargill relies on 28 U.S.C. § 1400(b), which provides: "Any *civil action for patent infringement may be brought* in the judicial district where the *defendant* resides, or where the *defendant* has committed acts of infringement and has a regular and established place of business" (emphasis added). Cargill's argument is that the statute bars venue over it because, besides (undisputedly now) not residing in the district, it did not commit acts of infringement in the Eastern District of Virginia. The district court rejected that argument, and we see no

persuasive basis for disturbing that ruling. We have recently held that venue is a matter of Federal Circuit law and generally is decided de novo, *Valeant Pharms. North America LLC v. Mylan Pharms. Inc.*, 978 F.3d 1374, 1381 (Fed. Cir. 2020), without stating the standard of review of a district court's findings on underlying material issues of fact.

A

As a threshold matter, CSIRO contends that 28 U.S.C. § 1400(b) does not provide venue protection to a third-party counterclaim defendant—which is Cargill's role here. CSIRO relies on the Supreme Court's decision in *Home Depot U.S.A., Inc. v. Jackson*, 139 S. Ct. 1743 (2019), invoking the textual similarity of § 1400(b) to the removal provision at issue there. We are persuaded by CSIRO's *Home Depot* argument, to which Cargill has offered no meaningful response.

In *Home Depot,* the Supreme Court interpreted the general removal statute, 28 U.S.C. § 1441(a), which states: "Except as otherwise expressly provided by Act of Congress, *any civil action brought* in a State court of which the district courts of the United States have original jurisdiction, *may be removed by the defendant or the defendants*, to the district court of the United States for the district and division embracing the place where such action is pending" (emphasis added). The Court was asked to interpret the term "defendant" in the "civil action brought" setting and whether the provision gave removal rights to third-party counterclaim defendants. *Home Depot*, 139 S. Ct. at 1747–48. The Court "conclude[d] that § 1441(a) does not permit removal by any counterclaim defendant, including parties brought into the lawsuit for the first time by the counterclaim," explaining that, although a third-party counterclaim defendant may be considered a "defendant" with regard to the *counterclaim*, "the statute refers to 'civil action[s],' not 'claims.'" *Id.* at 1748. The Court added that

"[t]he use of the term 'defendant' in related contexts bolster[ed] [its] determination," citing the Federal Rules of Civil Procedure's differentiation between third-party defendants, counterclaim defendants, and defendants—as well as other statutes' divergent word choices. *Id.* at 1749.[3]

"[W]hen one statute 'tracks the wording of' another, this is a 'strong indication that the two statutes should be interpreted pari passu,' particularly if the two provisions share a common purpose." *See Uniloc 2017 LLC v. Facebook Inc.*, 989 F.3d 1018, 1027 (Fed. Cir. 2021) (quoting *Northcross v. Bd. of Educ. of Memphis City Schools*, 412 U.S. 427, 428 (1973)). That principle fits this case, because both § 1400(b) and § 1441(a) set forth procedural protections for "defendants" who have "civil actions" "brought" against them. For that reason, *Home Depot* suggests that third-party counterclaim defendants are not "defendants" subject to the patent venue protections of § 1400(b). Moreover, in this case, as in *Home Depot*, the narrowness of the statutory language used is underscored by the contrast with broader language in related statutes. The patent removal statute, 28 U.S.C. § 1454(a)–(b), allows for removal "by *any party*" in "[a] civil action in which any party asserts a claim for relief arising under any Act of Congress relating to patents" (emphasis added); and the patent joinder provision, 35 U.S.C. § 299, provides limitations on when "parties that are accused infringers may be joined in one action as *defendants or counterclaim defendants*" (emphasis added). Section 1400(b), in contrast, is specific to the "defendant."

Cargill has not provided a sufficient justification for departing from the ordinary meaning of "defendant," confirmed by *Home Depot*. Cargill relies exclusively on *TC Heartland LLC v. Kraft Foods Group Brands LLC.*, 137 S.

---

[3] *See also Bowling v. U.S. Bank Nat'l Ass'n*, 963 F.3d 1030, 1036–40 (11th Cir. 2020) (summarizing *Home Depot* and extending its analysis to § 1441(c)).

Ct. 1514 (2017), *see* Appellants' Reply Br. 32–33 (citing only *TC Heartland* and *Valeant*'s characterizations of *TC Heartland*), but *TC Heartland* does not get Cargill far. There, the Supreme Court held that § 1400(b)'s allowance of venue "where the defendant *resides*" (emphasis added) was limited, for a corporation, to the place of incorporation, not extending to any judicial district in which the corporation is subject to personal jurisdiction, as is allowable under 28 U.S.C. § 1391, the general venue provision. *TC Heartland*, 137 S. Ct. at 1520–21. The *TC Heartland* Court relied on strong textual and historical reasons to support that interpretation of "resides" in § 1400(b)—notably, (1) the Court's rulings in *Stonite Products Co. v. Melvin Lloyd Co.*, 315 U.S. 561 (1942), and *Fourco Glass Co. v. Transmirra Products Corp.*, 353 U.S. 222 (1957), that § 1400(b) was the exclusive provision governing venue for those within its terms, and (2) Congress's subsequent action to amend the general venue statute while "expressly stating that [the general venue statute] does not apply when 'otherwise provided by law.'" *TC Heartland*, 137 S. Ct. at 1518–21. Cargill points to no comparable reasons to give "defendant" a meaning in the patent venue statute different from its meaning in the very similarly worded removal statute at issue in *Home Depot*.

The Court has explained that "the patent venue statute 'was adopted to define the exact jurisdiction of the federal courts in actions to enforce patent rights,' a purpose that would be undermined by interpreting it 'to dovetail with the general provisions relating to the venue of civil suits.'" *Id.* at 1518 (quoting *Stonite*, 315 U.S. at 565–66); *see also In re ZTE (USA) Inc.*, 890 F.3d 1008, 1014 (Fed. Cir. 2014) ("Section 1400(b), like its predecessor statutes, is intended to be restrictive of venue in patent cases compared with the broad general venue provision."). Therefore, we "narrowly construe[] the requirements of venue in patent cases" according to the words of § 1400(b). *Valeant*, 978 F.3d at 1379. Following that approach here, even if we accept that

this BASF declaratory-judgment action is a "civil action for patent infringement" at all, we must determine the meaning of "defendant" in the context of the "civil action . . . brought" language—language also used in the general venue statute, 28 U.S.C. § 1391(b). *Home Depot* supplies that meaning in the absence of something persuasive to the contrary. And Cargill has provided no persuasive reason to read § 1400(b) other than in accordance with *Home Depot*. In particular, it has not shown that following *Home Depot* here would undermine a distinction with the general venue statute supported by text or history.

We are also not persuaded that *General Electric Co. v. Marvel Rare Metals Co.*, 287 U.S. 430 (1932), provides a sufficient reason to extend the patent venue statute's text to reach third-party counterclaim defendants. *General Electric* dealt with a predecessor of the patent venue statute, which similarly provided venue protection to "the defendant" in "suits brought for the infringement of letters patent [in] the district courts." *Id.* at 433 (quoting 28 U.S.C. § 109 (1932)). The Supreme Court held that the statute did not provide venue rights to *plaintiffs* who became counterclaim defendants because "[the venue statute], taken according to the meaning ordinarily given to the words used, applies only to" defendants, *i.e.*, those haled into a court by a plaintiff, whereas the Court found "no warrant for a construction that would make it include" the original plaintiff who was "already in a court of his own choosing" and had effectively "waived" the venue statute's "privilege in respect of the places in which suits may be maintained against [him]." *Id.* at 434–35. This analysis is not directly applicable here. *General Electric* did not involve third-party practice at all: no new party brought in after filing was at issue. Indeed, third-party practice in federal court was very limited before the Federal Rules of Civil Procedure were adopted a few years after *General Electric* was decided. *See, e.g.*, Alexander Holtzoff, *Some Problems Under Federal Third-Party Practice*, 3 La. L. Rev.

408, 408–10 (1941); *see also generally Lesnik v. Pub. Indus. Corp.*, 144 F.2d 968, 973–74 (2d Cir. 1944), *superseded by statute on other grounds as stated in Jones v. Ford Motor Credit Co.*, 358 F.3d 205 (2d Cir. 2004).

In short, to hold that § 1400(b) covers third-party counterclaim defendants would require us to determine that, for patent suits only, two civil actions can exist in one lawsuit, with the counterclaim qualifying as a "civil action for patent infringement" that triggers the protections of § 1400(b) for counterclaim defendants—except for the original plaintiffs who under *General Electric* would be held to have forfeited venue protection. Based on the arguments presented to us, we are not persuaded to adopt such a conclusion in the face of *Home Depot*.

B

Even if § 1400(b) reaches a third-party counterclaim defendant such as Cargill, we see no sound basis for disturbing the district court's determination that venue was proper here as to Cargill. It is uncontested that Cargill does not reside in Virginia but does have a regular and established place of business there, so the § 1400(b) standard (now assumed to be applicable) is met here if Cargill committed an act of infringement in Virginia (or another's act of infringement in Virginia can be properly imputed to it). Cross-Appellants' Opening Br. 68–71; Appellants' Opening Br. 56–59. The district court determined that BASF's deposit of seeds at the ATCC (in the district) was an infringing act properly imputed to Cargill. *Venue Opinion*, 2019 WL 2017541, at *4–5. Cargill has not made any developed argument that justifies rejecting that ruling. *See SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1320 (Fed. Cir. 2006) (holding arguments insufficiently developed are forfeited).

Cargill does not meaningfully contend in this court that BASF's deposit of seeds at the ATCC for patenting was outside the scope of infringing "uses" under 35 U.S.C.

§ 271(a). *See* Oral Arg. at 18:54–19:25 (Cargill conceding lack of developed argument on this point); Appellants' Reply Br. 30 n.8 (alluding to this argument for the first time in reply and in a footnote). For that reason, and without ourselves considering the merits of that characterization, we accept that the deposit was an infringing act of BASF in the district. As important, Cargill also provides no meaningful argument to undermine the district court's characterization of Cargill and BASF as engaged in a partnership to carry out a project advanced by obtaining patent protection, with the ATCC seed deposit an act in furtherance of that goal. Instead, Cargill asserts that the deposit was "done in furtherance of BASF's patent applications" and "Cargill received no benefit," Appellants' Opening Br. 58, but the critical latter assertion is unsupported, and it runs counter to the Cargill-BASF agreement's contemplation of BASF's filing of patents, Response to Court, Ex. B at 75, *BASF v. CSIRO*, No. 20-1415 (Fed. Cir. Nov. 17, 2021), ECF No. 60-2.

As to the bottom-line determination of imputation based on these premises, Cargill has presented no remotely persuasive argument why imputation of an act done in furtherance of a partnership cannot support venue. We rest here on the absence of any substantial argument against application of general imputation standards that on their face offer support for imputation in circumstances like those here. *Cf. Akamai Techs., Inc. v. Limelight Networks, Inc.*, 797 F.3d 1020, 1022–23 (Fed. Cir. 2015) (en banc) (drawing from the general principles of vicarious liability); *BMC Resources, Inc. v. Paymentech, L.P.*, 498 F.3d 1373, 1379–81 (Fed. Cir. 2007) (holding that an actor is liable for infringement under § 271(a) if it acts through an agent or contracts with another to perform one or more steps of a claimed method); *Master Tech*, 181 F. Supp. 2d at 913–14 ("Moore's and Mitchell's contacts with Master Tech in Illinois, in their capacity as Smith's agents, are attributable to Smith for venue purposes."). We will not speculate about

what a more developed argument against imputation in circumstances like those here might demonstrate.

Cargill does argue that it is not itself an indirect infringer because it did not induce BASF to deposit the seeds at the ATCC, but that argument does not address imputation for purposes of liability for direct infringement or for purposes of meeting the § 1400(b) standard. Cargill also argues that *Minnesota Mining & Manufacturing*, 757 F.2d 1256 (*3M*), is not a sound basis for imputation, but imputation here need not rest on that case. We accept that *3M* is limited to corporate veil piercing that justifies legally treating the two corporations as one for purposes of imputing one's place of business to the other. *See Celgene Corp. v. Mylan Pharms. Inc.*, 17 F.4th 1111, 1126–27 (Fed. Cir. 2021); *see also Andra Grp., LP v. Victoria's Secret Stores, L.L.C.*, 6 F.4th 1283, 1289 (Fed. Cir. 2021). But the present matter, besides involving imputation of infringing acts (not places of business), involves a different basis for imputation—actions taken in furtherance of a partnership of two entities whose separateness as corporations is undisputed. *3M* does not purport to declare its veil-piercing situation to be the only basis for imputation, particularly when considering imputation of infringing acts and not place of business, and Cargill has not offered a substantial argument against the soundness of the partnership basis that is present here.

For these reasons, we affirm the district court's refusal to grant Cargill's motion to dismiss for lack of venue.

III

On the merits, we begin with the appeal by BASF (including Cargill) of the jury's verdict that the asserted Group A patent claims are supported by an adequate written description. "Written description is a question of fact, judged from the perspective of one of ordinary skill in the art as of the relevant filing date." *Immunex Corp. v. Sandoz Inc.*, 964 F.3d 1049, 1063 (Fed. Cir. 2020). We

review a jury determination of such a fact issue for substantial evidence. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1355 (Fed. Cir. 2010) (en banc).

Under our written-description case law, the "critical inquiry" is whether the relevant artisan reading the specification "would understand that the inventor was in possession of [the claimed invention] at the time of filing." *Alcon Research Ltd. v. Barr Labs., Inc.*, 745 F.3d 1180, 1190–91 (Fed. Cir. 2014). "[T]he specification must describe an invention understandable to that skilled artisan and show that the inventor actually invented the invention claimed." *Ariad*, 598 F.3d at 1351. Actual reduction to practice is not a requirement. *Id.* at 1352; *Centocor Ortho Biotech, Inc. v. Abbott Labs.*, 636 F.3d 1341, 1353 (Fed. Cir. 2011); *Univ. of Rochester v. G.D. Searle & Co., Inc.*, 358 F.3d 916, 926 (Fed. Cir. 2004). Ascertaining the required possession starts with an accurate understanding of the claimed invention, *Amgen Inc. v. Sanofi*, 872 F.3d 1367, 1373 (Fed. Cir. 2017), and proceeds to an "objective inquiry into the four corners of the specification," *Ariad*, 598 F.3d at 1351. "[A] patentee may rely on information that is well-known in the art" to the extent it informs how a relevant artisan would reasonably understand what is actually described in the specification. *Ajinomoto Co., Inc. v. ITC*, 932 F.3d 1342, 1359 (Fed. Cir. 2019) (quoting *Boston Scientific Corp. v. Johnson & Johnson*, 647 F.3d 1353, 1366 (Fed. Cir. 2011)) (internal quotation marks omitted); *see also Centrak, Inc. v. Sonitor Technologies, Inc.*, 915 F.3d 1360, 1369 (Fed. Cir. 2019).

The six Group A claims at issue here concern LC-PUFA production, but none of them requires commercially desirable or other specific levels of such production. As discussed *supra*, three of the six claims cover only the "species" of canola, while the other three more broadly cover the "genus" of plant cells. We discuss the canola claims first, as the parties' arguments focus overwhelmingly, if not exclusively, on canola. We affirm the jury's

verdict as to those claims. But we reverse as to the broader genus claims, even though the parties devote almost no separate attention to those broader claims.[4]

A

The common specification of the Group A patents—which both parties rely on for this issue, not identifying any material differences between that specification and the 2004 provisional applications—includes numerous passages that expressly identify canola (by that name or others) as a preferred embodiment of the invention. In one section, the specification states that "[p]referably, the seed is derived from an oilseed plant" and that "[m]ore preferably, the oilseed plant is oilseed rape (*Brassica napus*)," meaning canola, before proceeding to list 14 other plants. '579 patent, col. 11, lines 6–15. Two additional passages similarly highlight canola.[5] And the prominence of the

---

[4] BASF does not appeal the jury's rejection of the obviousness challenge to the asserted Group A claims and the asserted '792 patent claim, but it does suggest that the rejection of the obviousness challenge means that there cannot be an adequate written description of the same claims. Appellants' Opening Br. 43–47. That suggestion is meritless. What the specification at issue describes to a relevant artisan as the inventions possessed by the inventors presents a distinct question from what a relevant artisan would have found obvious from the prior art without the specification. Notably, none of the three prior-art references at issue involves working examples of the unique components of the invention in *Arabidopsis*, and BASF does not claim otherwise. *See id.* at 45–46; J.A. 12615–26; J.A 13068–199; J.A. 13055–67.

[5] '579 patent, col. 39, line 66, through col. 40, line 16 (stating "[t]he plants of the invention may be corn (*Zea mays*), canola (*Brassica napus, Brassica rapa* ssp.)" before listing a number of other plants); *id.*, col. 40, lines 17–22

canola identification is underscored by the testimony of both sides' experts that a relevant artisan, when interested in developing an oilseed crop plant that could produce LC-PUFAs, would have focused on canola and soy (and maybe flax). J.A. 9728–29; J.A. 10077; *cf. Novozymes A/S v. DuPont Nutrition Biosciences APS*, 723 F.3d 1336, 1346–48 (Fed. Cir. 2013) (discussing "blaze mark" strain of written-description doctrine); *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1326–27 (Fed. Cir. 2000) (same).

Moreover, as to canola, the specification and trial evidence support a finding that the inventors had more than "a 'mere wish or plan' for obtaining the claimed invention." *Centocor*, 636 F.3d at 1348 (quoting *Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 119 F.3d 1559, 1566 (Fed. Cir. 1997)). In particular, the specification includes multiple working examples of *Arabidopsis*. *E.g.*, '579 patent, col. 68, line 20, through col. 70, line 67 (Examples 8–9); *id.*, col. 73, line 22, through col. 76, line 11 (Example 11); *id.*, col. 84, line 37, though col. 86, line 39 (Example 17). And CSIRO presented substantial evidence that "*Arabidopsis* is a very reliable model for *Brassica napus*," J.A. 10070, and that relevant artisans in 2004 (the year to which the Group A patents claim priority) would have understood that LC-PUFA production in *Arabidopsis* was highly predictive of positive results in canola.

For example, when CSIRO's expert was asked "what is your opinion about whether the invention disclosed in the 2004 Group A patents would actually work in canola," she

---

("In one embodiment, the plant is an oilseed plant, preferably an oilseed crop plant. As used herein, an 'oilseed plant' is a plant species used for the commercial production of oils from the seeds of the plant. The oilseed plant may be oil-seed rape (such as canola), maize, sunflower, soybean, *sorghum*, flax (linseed) or sugar beet." (italics in original)).

responded that "[d]efinitely, it is my opinion that it would work in canola." J.A. 10084. Similarly, when asked on cross-examination whether it was her position that "a person of ordinary skill in the art in 2004 would have known that if you had [the invention] in *Arabidopsis*, then you had it in canola," she answered that "[t]hat is one of my positions." J.A. 10186.[6] And the evidence explained *why* showing LC-PUFA production in *Arabidopsis* was predictive of success in canola—including that both plants "have the same genetic ability to make ALA," the compound that is the starting point for the Δ6-desaturase pathway. J.A. 10070–72; *see also* J.A. 8612–13.

Accordingly, this case is materially different from *Nuvo Pharmaceuticals (Ireland) Designated Activity Co. v. Dr. Reddy's Laboratories Inc.*, 923 F.3d 1368 (Fed. Cir. 2019).

---

[6] Additional testimony from the same expert, as well as testimony from another scientist at CSIRO, further conveyed this point. J.A. 8611–12 ("Of course, *Arabidopsis* is not the crop but you have a very good idea of what you can expect when you do the same thing in canola."); J.A. 8613 ("And so when you are testing in *Arabidopsis*, when you see DHA made in *Arabidopsis*, to me, that's a very, very high indication that as a scientist that you will get the same result. So not the same levels but that you will get DHA. . . . [T]he experimentation in *Arabidopsis* would be highly predictive of what one could expect in canola . . . ."); J.A. 10072 ("So I think that if you obtained DHA in *Arabidopsis*, I would have a very high confidence that the same thing would happen in canola."); *see also* J.A. 9980–81 (testimony of inventor, Dr. Surinder Singh) ("So relying on my, you know, quite prolonged experience in biotechnology and plant engineering, what I knew is that what we had shown in 2004–[0]5 in *Arabidopsis* seed, that that pathway, essentially, would work in canola, and so I was very confident that it will work.").

There, we held that, "[i]n light of the fact that the specification provides nothing more than the mere claim that uncoated [acid inhibitors] might work, even though persons of ordinary skill in the art would not have thought it would work, the specification is fatally flawed." *Id.* at 1381. Here, substantial evidence (the *Arabidopsis* working examples and the evidence of what they meant for canola to the relevant artisan, together with the prominence of canola in the specification) allowed the jury to find that relevant artisans reading the specification would have expected that the invention as claimed would work in canola and that the inventors were in possession of the claimed inventions when the specification was filed in 2004.

The evidence BASF cites in arguing for a contrary conclusion is not sufficient to overturn the jury's verdict. First, while BASF offered expert testimony explaining why *Arabidopsis* was not a predictive model of canola, *see, e.g.*, J.A. 9650–57, BASF provides no sound reason that the jury was unreasonable in crediting CSIRO's opposing expert testimony. Second, certain inventor testimony characterized by BASF as conceding unpredictability of the art, J.A. 8891–92, could reasonably be deemed of little relevance, since the inventor was discussing skepticism within CSIRO *before* the breakthrough in *Arabidopsis*, and the jury heard ample evidence that, once that breakthrough was achieved, success in canola was predictable. Third, and finally, the jury could reasonably give little weight to evidence that CSIRO did not produce LC-PUFA in canola until after the 2004 priority date and continued working for years thereafter on such production.[7] Because actual reduction to practice is

---

[7] *See, e.g.*, J.A. 9029–30 (Dr. Singh testifying that the earliest that CSIRO made LC-PUFAs in canola was at the end of 2009); J.A. 9091–93 (similar); J.A. 10022–24 (similar); J.A. 8807 (CSIRO's expert testifying to similar); J.A. 13614–15 (a 2009 investor analysis stating that a

not a requirement of possession, delay in actual production here does not negate constructive possession at the time of filing. And there was extensive testimony that CSIRO affirmatively chose to wait to achieve LC-PUFA production in canola because it was working on how to optimize LC-PUFA production to meet commercialization goals (a matter of prime interest to investors). J.A. 9830–33; J.A. 9979–81. The claims do not require commercially significant or any specific levels of LC-PUFA production, so CSIRO's post-2004 work does not negate a finding, supported by the evidence already recited, that the specification describes to a relevant artisan that the inventors possessed the claimed invention in 2004.[8]

BASF has cited no case indicating that CSIRO's evidence is not enough to support a jury verdict of adequate written description for the canola claims. In *Centocor*, which BASF stressed at oral argument, the claim at issue was directed to a fully human antibody with certain therapeutic properties (*i.e.*, high affinity, neutralizing activity, and ability to bind at a specific place on a human TNF-α protein), but the specification (1) disclosed only a chimeric

---

project "weakness[]" was that "[p]roof of concept [had] not [been] achieved in target crop"); J.A. 13459, 13479 (2007 investment document identifying as a "Key Risk" that, as of yet, "[t]echnology does not work in appropriate oil seed, only works in Arabidopsis"); J.A. 13483–84 (a 2010–2011 investor plan stating "[i]t is expected that proof-of concept for the production of omega-3 LC-PUFAs in canola will be achieved by project end at 30 June 2010").

[8] BASF also points to a CSIRO 2009 progress report stating that CSIRO's "first generation" construct did not produce any LC-PUFA. J.A. 12308. The jury could reasonably credit CSIRO's explanation of this evidence as referring to a different project. J.A. 9972–73; J.A. 10056; J.A. 10464–65.

(human/mouse) antibody that met the critical therapeutic claim limitations and (2) had only "a few sentences sprinkled throughout . . . that mention[ed] human antibodies." 636 F.3d at 1348–50. Undisputed expert testimony, moreover, showed that a chimeric antibody did not "serve as a stepping stone to identifying" the claimed fully human antibody, which was "very different" from the chimeric antibody disclosed in the specification. *Id.* On those facts, we overturned the jury's verdict of adequate written description. *Id.* at 1350–51. But we have a materially different case here. CSIRO presented expert testimony explaining that achieving LC-PUFA production in *Arabidopsis* was *more* than just a steppingstone to—and was, in fact, highly predictive of—achieving such production in canola. Although that testimony was disputed, we must defer to the jury's decision to credit it.

Other relied-on cases are no more helpful to BASF. In *Ariad*, we nowhere ruled that specifying the claimed embodiment in the specification and providing a working example in a highly predictive model would fail to meet the legal standard for adequate description, which contains no requirement of actual reduction to practice. 598 F.3d at 1352–54; *id.* at 1357–58 (noting that the specification "disclose[d] no working or even prophetic examples"); *see also Rochester*, 358 F.3d at 927–29 (invalidating a patent that functionally claimed compounds that selectively inhibited an enzyme, but identified no compound capable of that function).[9] In *Eli Lilly*, we held that a specification disclosing a rat cDNA sequence that produced insulin did not

---

[9] In noting that the *Arabidopsis* working example supports CSIRO in this case, we do not imply that working examples are always necessary for written description. Our case law makes clear that they are not. *E.g.*, *Falko-Gunter Falkner v. Inglis*, 448 F.3d 1357, 1366 (Fed. Cir. 2006).

provide written-description support for claims directed to a human cDNA sequence that produced insulin, but there, no information in the specification provided the relevant artisan with "information . . . pertaining to [the human] cDNA's relevant structural or physical characteristics." 119 F.3d at 1566–67. No case cited by BASF addresses the circumstances the jury could have reasonably found present here and deems them legally insufficient. Accordingly, we affirm the jury's verdict of written description as to the canola claims.

B

What remains for consideration is the trio of broader genus claims that reach any plant cell, not just canola, with the specified properties. The parties have not given us much to work with regarding these claims. They have focused nearly all their attention on canola. And BASF, as it noted at oral argument, has made almost no argument for invalidity of these claims *if* it is wrong about the canola claims. *See* Oral Arg. at 8:16–9:36.

But we conclude that is not the right way to view BASF's argument in this case. BASF has argued for the inadequacy of the written description as to *all* the asserted Group A claims on a common ground—that the magnitude of the leap from success in producing LC-PUFA in *Arabidopsis* to success in *any other plant* is too great for the written description to support claims to any other plant. *See* Appellants' Opening Br. 26–43 ("*Arabidopsis* is not an adequate stand-in for all plants. And it is not an adequate stand-in for canola."). And at trial, BASF introduced evidence—hardly any, but some—that the deficiency as to canola was a mere example of the general deficiency as to the broader genus of covered plants. *See* J.A. 9649–50; J.A. 9658–59; J.A. 9662–64.

CSIRO's response to BASF's argument beyond the canola context is insufficient. CSIRO relies mainly on *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1332

(Fed. Cir. 2003), to posit that there is an adequate written description because "the 'plant cell' term identifies a recognizable genus of 'host cell' for the inventive genetic construct." Cross-Appellants' Opening Br. 26–28. Crucially, however, CSIRO has not meaningfully disputed BASF's general point (or expert testimony) that success in *Arabidopsis* did not automatically mean success (or possession of the invention) in *all* plant cells—unlike in *Amgen*, where the district court was presented with expert testimony from which it could find that the specification adequately described "the use of the broad class of available mammalian and vertebrate cells to produce the claimed high levels of human EPO in culture." 314 F.3d at 1331. Nor has CSIRO pointed to or argued for the sufficiency of evidence, *e.g.*, evidence of a representative number of species, of the sort our precedents have flagged as important to determining adequate written-description support for broad genus claims with functional properties (as the claims here have been understood before us). *BASF v. CSIRO*, No. 2:17-cv-503, 2019 WL 1922521, at *8 (E.D. Va. Apr. 30, 2019); *see*, *e.g.*, *Juno Therapeutics, Inc. v. Kite Pharma, Inc.*, 10 F.4th 1330, 1335 (Fed. Cir. 2021) (citing *Ariad*, 598 F.3d at 1349–52); *cf. GlaxoSmithKline LLC v. Banner Pharmacaps, Inc.*, 744 F.3d 725, 731 (Fed. Cir. 2014) (noting functional-structural distinction).

In these circumstances, we conclude, the evidence to which we have been pointed sufficed to provide a reasonable basis for the jury to reject BASF's challenge as to canola but not as to the broader genus claims. As to the latter, the jury had no reasonable basis to reject BASF's evidence, thin as it was, of inadequate written-description support. We therefore reverse as to the broad genus claims.

IV

Both sides challenge the jury's verdict relating to BASF's assertion of co-ownership of the six patents at issue—that BASF co-owns the '792 patent but not the other

five. CSIRO appeals as to the '792 patent, BASF as to the others. The parties accept that BASF does not infringe a patent that it co-owns. BASF does not argue on appeal for co-ownership based on any claim of co-inventorship or sole inventorship of any claim of the patents. Rather, BASF argues for co-ownership here based entirely on the MTEA, and its argument is for co-ownership, not sole ownership.

The interpretation of the MTEA is a question of law decided de novo on appeal. *See Parkway 1046, LLC v. U.S. Home Corp.*, 961 F.3d 301, 312–13 (4th Cir. 2020); *Thatcher v. Kohl's Dep't Stores, Inc.*, 397 F.3d 1370, 1373–74 (Fed. Cir. 2005).[10] Neither party has expressly suggested that the choice of governing law (between Virginia and the Australian Capital Territory) matters here, and there is no apparent material dispute about governing principles of contract law. *Cf. Fraunhofer-Gesellschaft zur Förderung der Angewandten Forschung E.V. v. Sirius XM Radio Inc.*, 940 F.3d 1372, 1378 (Fed. Cir. 2019) (choosing to apply U.S. law where choice-of-law question was forfeited and there was no material difference in law of jurisdictions at issue). We ask whether, under a proper contract interpretation, substantial evidence allowed the jury, if reasonable, to reach its verdict on each patent. *Carolina Trucks & Equip., Inc. v. Volvo Trucks of North America, Inc.*, 492 F.3d 484, 488 (4th Cir. 2007). Under those standards, we affirm the verdict of no BASF co-ownership of five patents but reverse the verdict of BASF co-ownership of the '792 patent.

---

[10] BASF does not rely on the agreed-on jury instruction (J.A. 8321–22) concerning the MTEA to support its argument. CSIRO mentions the instruction, Cross-Appellants' Opening Br. 42–43, but offers nothing from the instruction that adds meaningfully to its arguments based on the MTEA itself.

A

BASF has relied on the Ownership provision of the MTEA but only insofar as it confers joint ownership, disclaiming any argument for sole ownership. *See* Appellants' Reply Br. 28. The Ownership provision, § 6.2, addresses "New Materials, Transformed Lines and Results and any Intellectual Property subsisting in them," J.A. 12669, but the transformed lines are not in dispute here. "Joint New Materials" and "Joint Results," the provision says, "will be owned jointly by CSIRO and [BASF]." J.A. 12669–70. And the parties agree that joint ownership extends to "Intellectual Property subsisting in" such "Joint New Materials" and "Joint Results."

The MTEA's definitional provision, § 1.1, defines "Joint New Materials" and "Joint Results" after defining terms building up to those. The starting point is the definition of "Evaluation" to mean "the programme of work to be carried out under this Agreement and described in Schedule B," which lists the 13 specific constructs—all of which contain BASF-CSIRO combinations—that were tested as part of the project. J.A. 12666; J.A. 12681–84. Then, identifying "Materials" as certain preexisting, specified "genes, promoters and constructs of a Party identified in Schedule A" brought to the project, the definitional provision defines "New Materials" as "*constructs developed under the Evaluation* incorporating Materials," including "CSIRO New Materials" ("constructs containing only CSIRO genes"), "[BASF] New Materials" ("constructs containing only [BASF] genes"), and—at issue here—"Joint New Materials" ("constructs contain[ing] both CSIRO and [BASF] genes"). J.A. 12666 (emphasis added). The provision then uses a similar structure to define "Results" as "all results, data or information derived from the Evaluation" (but not New Materials and Transformed Lines), including "CSIRO Results" ("Results with respect to CSIRO Transformed Lines and CSIRO New Materials"), "[BASF] Results" ("Results with respect to [BASF] Transformed Lines and

[BASF] New Materials"), and—at issue here—"Joint Results" ("Results with respect to Joint Transformed Lines and Joint New Materials."). J.A. 12666 (also providing similar definitions for "Transformed Lines").

As relevant here, these provisions, read together, create joint ownership of three categories: (1) constructs that were developed under the Evaluation if they contained both CSIRO and BASF genes; (2) results, data, or information derived from the Evaluation respecting the CSIRO-BASF-gene-combination constructs developed under the Evaluation; and (3) Intellectual Property subsisting in the first two categories. BASF has not argued to us that any of the patents at issue here fall into the first category. As to the second category, BASF, in response to CSIRO's brief, effectively accepted—correctly, we think—"that Joint Results are the data and information related to" the BASF-CSIRO-gene-combination "constructs created during the MTEA collaboration using BASF and CSIRO genes," Appellants' Reply Br. 25, and on that basis BASF made no further argument that this case falls into the second category. Instead, BASF ultimately has rested its argument on the third category, specifically as applied to the second (Joint Results) category, contending that a reasonable jury had to find that all six patents claim intellectual property subsisting in results, data, or information derived from the Evaluation of the BASF-CSIRO-gene-combination constructs. *Id.* at 24–31.

We reject this contention, concluding instead that for all six patents a reasonable jury could only find no co-ownership. For BASF to prevail, the phrase "intellectual property subsisting in . . . Joint Results" must refer to the intellectual property whose ownership BASF is asserting, here consisting of patent rights—which are defined by

patent claims.[11] And the direction of the "subsisting in" relation is not, as BASF suggested at least once, *id.* at 25–26, that the Joint Results subsist in the intellectual property to be owned. To the contrary, the intellectual property to be owned must subsist in the Joint Results. Accordingly, under the MTEA provisions BASF has invoked, what BASF had to show was that intellectual property defined by claims of the patents "inhere[d]" in or "form[ed] an element of" the Joint Results. *Id.* at 25–26 (quoting *Subsist, v.*, Oxford English Dictionary (3d ed. 2012); *Inhere, v.*, Oxford English Dictionary (2d ed. 1989)).

BASF stakes its co-ownership position on an unreasonable view of what can satisfy that requirement. It asserts—and declares that "Appellants' argument is"—that, even though none of the six patents claim the BASF-CSIRO-gene-combination constructs or properties of them or uses of them, it is enough "that CSIRO obtained its patents by drawing on the lessons it learned from the experiments involving *both* BASF and CSIRO's materials." *Id.* at 28; *see also* Opponents' Reply Brief in Further Support of Their Renewed Motion for Judgment as a Matter of Law Under Fed. R. Civ. P. 50(b) or, in the Alternative, for a New Trial Pursuant to Rule 59(a) at 14, *BASF v. CSIRO,* No. 2:17-cv-503 (E.D. Va. Feb. 10, 2020), ECF No. 875 (BASF reply supporting post-trial motions, resting on allegation that "CSIRO used what they learned"). But it cannot reasonably be said that merely "drawing on the lessons" of the Evaluation work to come up with new and nonobvious inventions—of which BASF was not even a co-inventor—makes those inventions inherent in or an element of the results, data, or information derived from the

---

[11] BASF has made no claim of trade-secret status of any relevant information, much less connected any such status to the asserted co-ownership of the patents.

Evaluation work.[12] The law has long recognized separate patentability and inventorship for advances that, as is routine, draw on lessons learned from earlier work of others. *Cf. KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–19 (2007) ("[I]nventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known."). Such advances are not properly deemed inherent in or elements of the earlier work.

Besides being linguistically unreasonable in the relevant legal context, BASF's interpretation makes no "commercial sense"—a consideration that both sides recognize as important in construing the MTEA. Cross-Appellants' Opening Br. 40; Appellants' Reply Br. 26. The MTEA had a two-year term, and the parties knew that each would learn lessons from the joint work and would continue work in the field when the agreement ended. Under BASF's interpretation, the MTEA would create an ever-threatening cloud over independent post-MTEA work and the investments in such work. As CSIRO observes, under that interpretation, "it is hard to see how either party could *ever* obtain a patent in this field without its being subject to a co-ownership challenge." Cross-Appellants' Reply Br. 8. It cannot reasonably be inferred, from language not so requiring, that the parties agreed to a provision with that likely consequence.

B

BASF must rely for its co-ownership position on its unjustifiable interpretation of the MTEA provision because it

---

[12] All claims of the issued patents are presumed valid, 35 U.S.C. § 282(a), and that presumption has not been overcome in this case as to any claims at issue (besides the genus claims).

has presented no more concrete, specific basis for a reasonable finding that the intellectual property claimed in the patents at issue subsisted in the data, results, or information derived from the Evaluation work on the BASF-CSIRO-gene-combination constructs. The jury could properly reject such a finding, as it did, for five of the patents. And the evidence required the jury to reject such a finding, we conclude, for the '792 patent.

As to two of the Group A patents (the '880 and '357 patents), BASF points to nothing in any specific claim (or even in the specification) that matches any Schedule B construct or result, data, or information about such a construct. Appellants' Opening Br. 51–52. It argues only that CSIRO obtained information pertaining to how to get constructs working in canola, with no details identified or shown to be significant to any claim. *Id.* (citing J.A 9530; J.A. 9540). At least in light of CSIRO's inventors' pre-MTEA awareness of how to succeed in canola (as discussed in the written-description section of this opinion *supra*), this is not enough to show intellectual property in the patents that subsists in results, data, or information deriving from the Evaluation work (as opposed to, *e.g.*, from pre-MTEA work). Certainly, the jury could so find.

For the two other Group A patents (the '579 and '033 patents), BASF does cite to at least one claim in each patent that requires at least one BASF gene that was tested as part of the joint evaluation.[13] Those genes, however, were not themselves constructs that constituted Joint New

---

[13] Unasserted claim 7 of the '579 patent recites two BASF genes. '579 patent, col. 215, line 54, through col. 216 line 42; *id.*, col. 16, lines 62–63, col. 17, lines 22–23; J.A. 12678, 12683. Unasserted claims 1, 6, and 15 of the '033 patent each recite one BASF gene. '033 patent, col. 213, line 58, through col. 215, line 57; *id.*, col. 16, lines 60–61, col. 17, lines 20–21; J.A. 12678, 12683.

Materials, and they also were publicly known before the MTEA: in fact, they had been listed in the 2004 provisional applications to which CSIRO traces priority for these patents. J.A. 11628; J.A. 11128; *see also* J.A. 11986, 12011–12 (published U.S. application based on 2005 Paris Cooperation Treaty application). The genes are just components (identified as known in the prior art) of the inventions claimed in the patents, not the inventions themselves. BASF has not identified any results, data, or information from the Evaluation work regarding the Schedule B constructs that even made their way into these patents, let alone in which the intellectual property defined by the claims of these patents subsists. Again, the jury could reject co-ownership for these patents.

We come to the same conclusion about the '541 patent. BASF identifies a passage in the specification that highlights using a specific combination of two genes—a fungal *Pichia pastoris* ω3-desaturase (which is also a Δ15-desaturase, if it is operating on certain substates and one counts from the other end of the molecule) and a Δ6-desaturase. '541 patent, col. 66, 19–26; *id.*, col. 41, lines 52–55; J.A. 9941–42; *see also id.*, col. 42, lines 46–50 (discussing the same fungal ω3-desaturase). BASF argues that this passage must be drawn from the results of the MTEA, which ran an experiment testing the use of selected "[ω]3-specific" Δ6-desaturases and fungal Δ15-desaturases. J.A. 12682. But there is no evidence establishing even that assertion, let alone the required connection of the intellectual property of the '541 patent, based on its claims, to the MTEA work. The MTEA experiment undisputedly did not test the particular combination noted in the '541 patent specification, which, moreover, is not claimed in the patent: the claims more generally call for certain oils, without reference to specific desaturases; and BASF has not shown that the jury had to find that CSIRO used any of the MTEA Schedule B constructs in its production of the claimed oils. Further, the evidence permits the finding that a 2004

CSIRO application, years before the MTEA project, disclosed a combination of a Δ6-desaturase and a ω3-desaturase (Δ15-desaturase). *See* J.A. 11689 (CSIRO 2004 application); J.A. 9941–42 (testimony explaining CSIRO 2004 application). Additional evidence allowed the jury to find that post-MTEA CSIRO research independent of the MTEA led to use of the *Pichia pastoris* fungal Δ15-desaturase. J.A. 13231. Thus, again, substantial evidence supports the jury verdict of no co-ownership for the '541 patent.

Finally, for the '792 patent, we conclude that BASF has not identified substantial evidence that supports the jury's verdict of co-ownership. This patent's claims do not require any Schedule B construct or other Joint New Material under the MTEA. In responding to CSIRO's argument, BASF has pointed to "three BASF-owned enzymes" called for by various claims of this patent—represented by SEQ ID NO: 30 (an amino acid sequence) and SEQ ID NO: 131 (a nucleotide sequence) in claim 1 (and hence all claims) and SEQ ID NO: 133 (a nucleotide sequence) in claim 2 alone—where the enzymes correspond to genes that were listed in MTEA Schedule A and used as *parts* of Schedule B constructs. Appellants' Reply Br. 26; *see* '792 patent, col. 28, line 16, col. 29, lines 12, 14; *id.*, col. 241, line 37, through col. 242, line 62; J.A. 12678; J.A. 12682–84; J.A. 9842–43.[14] Some, perhaps all, of these enzymes and genes may well have been publicly available before the MTEA, J.A. 12647; J.A. 11133–35; J.A. 9841–45; BASF does not assert or point to evidence showing otherwise, Appellants' Reply Br. 26–28. Regardless, there is no dispute that the '792 patent's claims are to patentable inventions of which these enzymes

---

[14] BASF's citations encompass a few other '792 patent references to amino acid or nucleotide sequences, *e.g.*, SEQ ID NO: 130 for an *Ostreococcus tauri* Δ5-elongase, which BASF has not tied to the MTEA. Appellants' Reply Br. 26.

or genes are mere parts. The claimed inventions are not inherent in or elements of the MTEA Schedule B constructs. BASF also has not identified any concrete, specific data, results, or information about the constructs, derived from the Evaluation, in which the '792 patent claims can reasonably be said to inhere.

Instead, BASF cites a 2009 email from one of the named inventors, Dr. Singh, stating that the "amount of data sent over by BASF was substantial and we feel it has been extremely good value to have done the joint evaluation with them." J.A. 13586. But no evidence reasonably ties that good-value generalization to the '792 patent claims. The same is true of the fact that an August 2009 summary of Evaluation results was found tucked into Dr. Singh's lab notebook from 2017—around the time when CSIRO applied for the asserted patents (based on pre-MTEA provisional applications). J.A. 9037–40; J.A. 13244–45. BASF has not identified any passages within the August 2009 summary and shown how such passages are tied to the '792 patent claims. BASF also notes evidence that the '792 patent includes research results generated in 2008 and 2009—around the same time interim results of the MTEA were being reported to CSIRO. J.A. 8995–96; J.A. 9038; J.A. 9526–32. That observation too says nothing specific about Evaluation results, speaking only to some amount of temporal overlap. BASF's inability to identify any specific results, data, or information from the Evaluation work as properly tied to the '792 patent claims leaves the record lacking in any basis that can support the jury's verdict without an impermissible level of speculation.[15]

---

[15] The dissent cites certain testimony, not cited by BASF in its briefing to us, to support at most two propositions: first, that *Ostreococcus tauri* Δ6 desaturase (recited in the '792 patent by reference to SEQ ID NO: 30) and

Accordingly, we affirm the jury's verdict of no co-ownership of the Group A patents and the '541 patent but reverse the verdict of co-ownership of the '792 patent.

V

The foregoing rulings require removal of the asserted genus claims (both asserted claims of the '880 patent and claim 1 of the '357 patent) from the remedy and addition of the asserted claim of the '792 patent to the remedy. We leave it to the district court to decide what specific changes those two steps entail.

The scope of liability aside, CSIRO appeals the district court's remedy determinations in various respects, contending that the district court erred in its (1) refusal to submit willfulness to the jury; (2) refusal to submit to the jury the issue of a royalty for past infringement; (3) denial of an infringement-stopping injunction; and (4) calculation of the ongoing reasonable royalty. We reject the first two challenges. As to the fourth, we find error in the district court's starting point for its calculation of an ongoing royalty, which should be reconsidered on remand. As to the third, we see no basis for finding an abuse of discretion in

---

Thraustochytrium sp. Δ5 desaturase (recited in the '792 patent by reference to SEQ ID NO: 131) "were BASF materials that were provided under the Agreement," as the MTEA explicitly says; and second, that in July 2017, CSIRO was focused on *Ostreococcus tauri* Δ6 desaturase and/or *Thraustochytrium* sp. Δ5 desaturase. Dissent at 6–8 (citing Transcript of Proceedings (Jury Trial–Day 4) at 712:6–24, 722:8–17, 723:23–724:9, 771:24–773:6, *BASF v. CSIRO*, No. 2:17-cv-503 (E.D. Va. Nov. 15, 2019), ECF 804). Neither proposition meets the MTEA standard for co-ownership explained above, and BASF, not citing the testimony, makes no argument for how that testimony meets that standard.

the denial of an infringement-stopping injunction under the circumstances present at the time of district court's decision; but in the remand we are ordering, the district court should reconsider its denial of an infringement-stopping injunction under the law governing alteration of a denial when a case remains alive and circumstances change. We do not explore those standards or whether alteration of the denial is warranted.

A

The district court concluded that CSIRO had presented insufficient evidence of willfulness, which is a question of fact, *Polara Engineering Inc. v. Campbell Co.*, 894 F.3d 1339, 1353 (Fed. Cir. 2018), for a reasonable jury to find in CSIRO's favor, and the court accordingly granted BASF's Rule 50(a) motion for judgment of no willfulness. We affirm that ruling, without needing to consider whether the district court's statement that it would not enhance damages regardless of any willfulness verdict makes it unnecessary to review the Rule 50(a) willfulness ruling.

To establish willfulness, a patentee must show that the accused infringer had a specific intent to infringe at the time of the challenged conduct. *Bayer Healthcare LLC v. Baxalta Inc.*, 989 F.3d 964, 987 (Fed. Cir. 2021) (citing *Halo Electronics, Inc. v. Pulse Electronics, Inc.,* 136 S. Ct. 1923, 1933 (2016)). In this court, CSIRO identifies only two facts as creating a triable issue of willfulness: that certain BASF witnesses were aware and kept track of CSIRO patents and that BASF did not assert its co-ownership defense until after infringement and litigation had begun. Cross-Appellants' Opening Br. 65–66 (citing J.A. 9364–69; J.A. 9792); Cross-Appellants' Reply Br. 29. But the second fact cannot be significant given that the patents now at issue did not even issue to CSIRO until after BASF initiated litigation by bringing its declaratory-judgment action in Delaware. And the first fact, even if joined to the second, without additional facts could not establish more than "[k]nowledge of

the asserted patent and evidence of infringement"—which "is necessary, but not sufficient, for a finding of willfulness." *Bayer Healthcare*, 989 F.3d at 987–88; *see also Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1371 (Fed. Cir. 2017) (relying on facts beyond knowledge of infringement to support a willfulness finding). CSIRO has not shown reversible error in the district court's willfulness ruling.

B

CSIRO challenges the district court's decision to preclude jury determination of a royalty for past infringement. "[W]here a district court rules, as a matter of patent law, that a party is precluded from introducing evidence," this court applies its own law and reviews de novo. *Sulzer Textil A.G. v. Picanol N.V.*, 358 F.3d 1356, 1363 (Fed. Cir. 2004). But evidentiary rulings such as the one at issue in this matter, concerning a lack of foundation, are reviewed under regional circuit law, which here is reviewed for abuse of discretion. *Id.*; *United States v. Caldwell*, 7 F.4th 191, 202, 204 (4th Cir. 2021). With these standards in mind, we affirm the district court's action, taken after it made an evidentiary ruling about the lack of adequate foundation for CSIRO's proffered evidence and CSIRO, rather than seeking to solidify the foundation, withdrew its request for past-infringement damages.

CSIRO contends that the district court, as a matter of patent law, precluded CSIRO from presenting any evidence of a reasonable royalty for past damages on the mistaken premise that projections of future costs, sales, and profits are per se irrelevant to what the patentee could have insisted on as compensation for licensing its patents before sales began. Cross-Appellants' Opening Br. 58–61 (citing *Interactive Pictures Corp. v. Infinite Pictures, Inc.*, 274 F.3d 1371, 1385 (Fed. Cir. 2001); *Snellman v. Ricoh Co., Ltd.*, 862 F.2d 283, 289 (Fed. Cir. 1988); and *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1163 (6th

Cir. 1978)). Such a ruling might well be error, as CSIRO suggests. *See Aqua Shield v. Inter Pool Cover Team*, 774 F.3d 766, 771–72 (Fed. Cir. 2014) (stressing centrality of expectations of profits in past-damages calculation using hypothetical-negotiation framework). But the district court here ultimately did not so rule, *see* J.A. 10568–89, despite making some statements suggesting the irrelevance of future projections to past damages, *see, e.g.*, J.A. 10581, as BASF itself urged, *see, e.g.*, J.A. 10568–69; J.A. 10574.

The district court never had to so rule because it ruled only on a threshold evidentiary question of whether CSIRO laid the proper foundation for the royalty rate grounded in future projections before CSIRO withdrew its past-damages claim. The court made the following statement to CSIRO concerning the testimony in question:

> How much does their alleged infringement affect your research costs? When did the infringement start? Nobody said when the infringement started. Did it start when they first planted the product which produced allegedly infringing oil? I don't know. Did it start when you first notified them that you were claiming they were infringing? I don't know. But you have to lay your foundation before you hit the jury with any percentage royalty that you're requesting. So I don't know how you do that. I just named some examples of what I think is missing, but I don't know if I've thought of all the examples of what's missing or not. It's just that everything is missing at this point. . . . You have to decide what evidence you want to present or attempt to present, but I've told you that I don't see how you can support these numbers without some foundation, and I've given you some ideas of what I meant by foundation . . . .

J.A. 10581–82 (formatting altered); *see also* J.A. 10570–78; *cf. Packet Intelligence LLC v. NetScout Sys., Inc.*, 965 F.3d

1299, 1314–15 (Fed Cir. 2020). The court concluded that "there are problems with attempting to base a reasonable royalty rate based on projected future sales, and at this point, *as the evidence stands*, I don't believe the Court can do that." J.A. 10584 (emphasis added). CSIRO, on appeal, has not established that the district court abused its discretion in its foundation ruling. We therefore reject this challenge by CSIRO.

C

On the forward-looking remedy question, CSIRO appeals the district court's denial of an infringement-stopping injunction and its calculation of the ongoing royalty it ordered in lieu of such an injunction. These rulings are reviewed for abuse of discretion. *See eBay*, 547 U.S. at 391; *XY, LLC v. Trans Ova Genetics, L.C.,* 890 F.3d 1282, 1290 (Fed. Cir. 2018).

We see no reversible error in the denial of an infringement-stopping injunction in the circumstances presented to the district court, including the absence of the '792 patent (with its longer term than that of the Group A patents) from the remedy, the fact that CSIRO and its partners had not yet entered the commercial market and had not established that entry was coming soon, and the potential harm done to the public by not allowing both Cargill and CSIRO to enter the underserved fish-food market. *Remedies Opinion*, 2019 WL 8108116, at *17–18, *20–21. We have reviewed the district court's extensive analysis. *Id.* at *16–21. To set aside the district court decision, we would have to find a legal error or clearly erroneous factual finding or clear error of judgment, or a combination of such errors, that justified reconsideration of the bottom-line ruling. *See*, *e.g.*, *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1337 (Fed. Cir. 2012); *PGBA, LLC v. United States*, 389 F.3d 1219, 1223–24, 1228–32 (Fed. Cir. 2004). The court may have given insufficient weight to the distinctive circumstances of CSIRO's willingness to license,

see Apple Inc. v. Samsung Electronics Co., Ltd., 735 F.3d 1352, 1370–71 (Fed. Cir. 2013), but we do not see a sufficient ground for setting aside the denial of the infringement-stopping injunction, given the court's overall analysis based on the facts at the time of the ruling.

As to the ongoing royalty, we see one, and only one, error in the district court's analysis that warrants a remand for reconsideration. The evidence included five licenses as candidates for use to set a baseline for a reasonable royalty hypothetical negotiation: (1) the CSIRO/GRDC-Nuseed agreement; (2) the BASF-Cargill agreement; (3) the BASF-University of Hamburg agreement; (4) the BASF-Amaethon Limited agreement; and (5) the Bioriginal agreement (which was a part of the BASF-Cargill agreement as an attachment). *Remedies Opinion*, 2019 WL 8108116, at *14–16. Although the first two licenses covered what appears to be the closest technology at issue, *see LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 79–81 (Fed. Cir. 2012); *Commonwealth Sci. & Indus. Rsch. Organisation v. Cisco Sys., Inc.*, 809 F.3d 1295, 1306–07 (Fed. Cir. 2015), the district court determined that those licenses were not sufficiently comparable to merit use for the royalty baseline because they were profit-sharing arrangements for research and development—not agreements between competitors. *See Remedies Opinion*, 2019 WL 8108116, at *15, *24 (also mentioning that the agreements were not comparable because they "confer[red] numerous exclusive rights which would not be the subject of the instant hypothetical negotiation").

But that reasoning creates a problem of internal inconsistency because the agreements that the court instead used for its baseline (*i.e.*, the Hamburg, Amatheon, and Bioriginal agreements) were *also* not competitor agreements. *Id.* at *15–16, *24. The district court did not adequately explain why not being a competitor licensing agreement was an outright bar for consideration of two licensing agreements but only a surmountable obstacle for the other

three. In other words, if despite their non-competitive nature, the Hamburg, Amaethon, and Bioriginal agreements were relevant to form a baseline because they were "sufficiently economically and technologically comparable," it is not evident why the same is not true of the CSIRO/GRDC-Nuseed and BASF-Cargill agreements. The seeming inconsistency at a key starting point of the royalty analysis warrants a remand for reconsideration. *See Presidio Components, Inc. v. Am. Tech. Ceramics Corp.*, 702 F.3d 1351, 1362–64 (Fed. Cir. 2012); *see also In re Sentinel Mgmt. Grp., Inc.*, 728 F.3d 660, 670 (7th Cir. 2013); *Thompson v. Wal-Mart Stores, Inc.*, 472 F.3d 515, 516–17 (8th Cir. 2006); *Valjean Mfg. Inc. v. Michael Werdiger, Inc.*, 164 F. App'x 7, 11 (2d Cir. 2005).

On the remand, the '792 patent, which has a longer term than the Group A patents, will be part of an altered record for the prospective remedy (while the broader genus claims will not)—both for the ongoing royalty and for the infringement-stopping injunction. Besides noting the need to include the '792 patent in the remedy and exclude the genus claims, we do not prejudge whether the altered basis of liability requires other changes in the remedy. *See, e.g.*, *Remedies Opinion*, 2019 WL 8108116, at *17, *19, *21 (mentioning the life of the patents in irreparable harm, adequacy of legal remedy, and public interest injunction prongs); *id.* at *25 (applying a downward influence on *Georgia-Pacific* factor 7 due to the "relatively short" life of the Group A patents); *id.* at *26 (considering "designing around" time in accepting that the royalty should be assessed on gross sales).

We also are told that new facts will exist, namely that CSIRO and its partners have entered the commercial market, changing a fact on which the district court relied in denying an infringement-stopping injunction. On remand, the district court should therefore consider whether there are such new facts, whether governing law permits them to be considered as a basis for now granting an infringement-

stopping injunction, and whether, if so, they warrant changes in the remedy. *See Edwards Lifesciences AG v. CoreValve, Inc.*, 699 F.3d 1305, 1315–16 (Fed. Cir. 2012); *Presidio Components, Inc. v. Am. Technical Ceramics Corp.*, 875 F.3d 1369, 1383–84 (Fed. Cir. 2017); Cross-Appellants' Opening Br. 11–12 & n.4.

VI

For the foregoing reasons, we affirm the district court's determination that venue as to Cargill was proper. We affirm the jury's verdict of adequate written description as to the asserted canola claims of the Group A patents but reverse as to the asserted broader genus claims of those patents. We affirm the jury's verdict of no BASF co-ownership of five of the six patents at issue but reverse the verdict of BASF co-ownership of the sixth, the '792 patent. We affirm the district court's refusal to submit willfulness and past damages to the jury. We remand for further proceedings on remedy, consistent with this opinion.

The parties shall bear their own costs.

AFFIRMED IN PART, REVERSED IN PART, VACATED IN PART, AND REMANDED

United States Court of Appeals for the Federal Circuit

BASF PLANT SCIENCE, LP,
Plaintiff-Appellant

v.

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION,
Defendant-Cross-Appellant

COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION, GRAINS RESEARCH AND DEVELOPMENT CORPORATION, NUSEED PTY LTD.,
Plaintiffs-Counterclaimants-Cross-Appellants

v.

BASF PLANT SCIENCE, LP, CARGILL, INC.,
Defendants-Counterdefendants-Appellants

BASF PLANT SCIENCE GMBH,
Counter-Counterclaimant-Appellant

2020-1415, 2020-1416, 2020-1919, 2020-1920

Appeals from the United States District Court for the Eastern District of Virginia in No. 2:17-cv-00503-HCM-LRL, Senior Judge Henry C. Morgan Jr.

NEWMAN, *Circuit Judge*, dissenting in part.

I respectfully dissent. The district court conducted a thorough trial, with some questions decided by the court and some by the jury, as appropriate to their nature of fact or law. I focus here on my colleagues' reversal of the jury's verdict that BASF and CSIRO are joint owners of one of the six patents in this suit.

Commonwealth Scientific and Industrial Research Organisation ("CSIRO") and BASF each had been studying the field of plant genetic technologies, and in 2008 they entered into a research collaboration to share information and materials concerning the production in plants of certain omega-3 polyunsaturated fatty acids, products commonly known as "fish oil." Trial Tr. vol. 4, 783:5–7, *BASF v. CSIRO*, No. 2:17-cv-503, (E.D. Va. Nov. 15, 2019), ECF No. 804. The premises for this collaboration are contained in a Materials Transfer and Evaluation Agreement ("the Agreement" or "MTEA"), whose statement of purpose introduces the Agreement as follows:

> CSIRO and BPS [BASF Plant Science] wish to collaborate to jointly evaluate each party's genes, promoters and constructs to see if there are options for further enhancing the levels of LC-PUFAs (Long chain polyunsaturated fatty acids) EPA and DHA in canola.

MTEA at 1, Recital B.

After extensive trial proceedings, the jury found that CSIRO is the sole owner of five of the six patents at issue in this case, and CSIRO and BASF are co-owners of U.S. Patent No. 9,994,792 ("the '792 patent"). The district court sustained the verdicts. The panel majority now affirms the verdicts as to the five patents found to be solely owned by CSIRO, but reverses the verdict as to the '792 patent. The majority errs, for there was substantial evidence

supporting the verdict with respect to the '792 patent, as I shall discuss.

The Agreement provides for co-ownership of intellectual property "subsisting in Joint New Materials and Joint Results"

The Agreement states its purpose to "jointly evaluate each party's genes, promoters and constructs." MTEA at 1, Recital B. The Agreement specifies the genetic materials and methods contemplated for study. For example:

> 1. Combination BPS-CSIRO: Exploiting the CoA-pathway by coupling the d12-desaturase (CoA substrate) with the d6-desaturase from Ostreococcus tauri and a d5-desaturase (CoA-substrate).

MTEA at 18.

The Agreement defines "Materials" as "any genes, promoters and constructs of a Party identified in Schedule A and includes copies, replicates, progeny or unmodified derivatives of the original Material." MTEA at 2.

"New Materials means constructs developed under the Evaluation Incorporating Materials." *Id.* "Joint New Materials" are defined as "constructs [that] contain both CSIRO and BPS genes." *Id.*

"Results" are defined as "all results, data or information derived from the Evaluation." *Id.* "Joint Results" are "Results with respect to Joint Transformed Lines and Joint New Materials." *Id.*

"Evaluation means the programme of work to be carried out under this Agreement and described in Schedule B with the purpose of enhancing the levels of LCPUFAs EPA and DHA in canola." *Id.*

The Agreement provides for joint ownership of the products of the collaboration, including intellectual

property subsisting in joint new materials, transformed lines, and results:

> **6.2. Ownership**
>
> New Materials, Transformed Lines and Results and any Intellectual Property subsisting in them will be owned, immediately upon creation, in the following way: . . .
>
> (a) (iii) Joint New Materials will be owned jointly by CSIRO and BPS . . . .
>
> (b) (iii) Joint Transformed Lines will be owned jointly by CSIRO and BPS . . . .
>
> (c) (iii) Joint Results will be owned jointly by CSIRO and BPS

MTEA at 5–6.

The Agreement provides that the joint ownership provisions remain in effect after expiration of the collaboration:

> **11.4 Survival**
>
> (a) Clauses 1, 6, 8, 9, 10, 11.3 and 12 survive termination or expiry of this Agreement.

MTEA at 9. Joint ownership is conferred by clause 6.2 of the Agreement, *see supra*.

The jury verdicts concerning ownership

The jury received evidence of the subject matter of each of the six patents, and the district court instructed the jury on the application of the Agreement to each patent. The following jury instruction was agreed:

> If you find from a preponderance of the evidence that any such genetic material, genetic lines or research results were incorporated into any of the asserted patents then BASF is a co-owner of such

> patent and you must find that the Opponents do not infringe upon any such patent.

Trial Tr. vol. 11, 2042:18–22, *BASF v. CSIRO,* No. 2:17-cv-503, (E.D. Va. Nov. 15, 2019), ECF No. 811.

This jury instruction conforms to the Agreement's provisions of co-ownership of joint results and joint new materials. The jury received evidence that CSIRO incorporated BASF genetic materials and research results from the collaboration, and that the patented materials "contain both CSIRO and BPS genes." MTEA at 2, *ante.*

The jury was instructed as to the differences among the patents, and the usages of BASF genetic material. I focus on the '792 patent, for the panel majority reverses the jury's verdict that the '792 patent is jointly owned. My colleagues' finding is contrary to the record and contrary to the Agreement.

The '792 patent includes BASF gene-encoded enzymes, as shown by undisputed evidence

Patent claims 1 and 2 follow with added boldface to the genetic materials provided by BASF to CSIRO under the collaboration Agreement:

> **1.** A *Brassica napus* cell comprising exogenous polynucleotides encoding
>
> **a Δ6 desaturase** whose amino acid sequence is set forth as ***SEQ ID NO: 30***,
>
> a Δ6 elongase,
>
> **a Δ5 desaturase** whose amino acid sequence is identical to the amino acid sequence encoded by the nucleotide sequence set forth as ***SEQ ID NO: 131***,
>
> a Δ5 elongase whose amino acid sequence is at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 130, and

> a Δ4 desaturase whose amino acid sequence is identical to the amino acid sequence encoded by the nucleotide sequence set forth as SEQ ID NO: 132,
>
> wherein each exogenous polynucleotide is operably linked to a promoter that directs expression of said polynucleotide in the cell.
>
> **2.** The *Brassica napus* cell of claim **1**, wherein the **Δ6 elongase** has the amino acid sequence which is identical to the amino acid sequence encoded by the nucleotide sequence set forth as ***SEQ ID NO: 133***.

'792 patent, col. 241, ll. 36–58.

The genetic sequences provided by BASF and included in the '792 specification are the amino acid sequence SEQ ID NO: 30, the nucleotide sequence SEQ ID NO: 131, and the nucleotide sequence SEQ ID NO: 133. These DNA sequences correspond to BASF genes listed in Schedule A and recited in the claims. CSIRO does not dispute these facts.

The '792 patent claims a *Brassica* cell containing a Δ6 desaturase with the sequence set forth as SEQ ID NO: 30, which the specification identifies as the BASF gene *Ostreococcus tauri* Δ6 desaturase. '792 patent, col. 28, l. 16. The Δ6 desaturase from *Ostreococcus tauri* is identified in Schedule B as an object of study; *see* MTEA at 18 ("Exploiting the CoA-pathway by coupling the d12-desaturase (CoA substrate) with the d6-desaturase from *Ostreococcus tauri* and a d5-desaturase (CoA-substrate)"); MTEA at 19 ("Exploiting the transfer from omega6- to omega3-pathways by increasing the amounts of omega3-precursors using omega3-specific Δ6-desatureses and fungal Δ15-desaturases."); MTEA at 20 ("Exploiting DHA synthesis. The pathway steps from EPA to DHA will be analysed using four different constructs with different Δ5-elongases and Δ4-desaturases.").

The jury received evidence that *Ostreococcus tauri* Δ6 desaturase was studied in five of the thirteen constructs in

Schedule B. Dr. Singh, scientist at CSIRO listed as an inventor for the '792 patent, testified concerning the preparation of constructs containing, *Ostreococcus tauri* Δ6 desaturase. *See* Trial Tr. vol. 4, 771:24–773:6, *BASF v. CSIRO*, No. 2:17-cv-503, (E.D. Va. Nov. 15, 2019), ECF No. 804. ("I say positive control will be the tauri, which is *Ostreococcus tauri* delta-6 desaturase, which is codon optimized and non-codon optimized.").

Another CSIRO witness explained to the jury that both the *Ostreococcus tauri* Δ6 desaturase and the *Thruastochytrium* sp. Δ5 desaturase are BASF materials that were provided under the Agreement. Trial Tr. vol. 8, 1508:13–1509:2, *BASF v. CSIRO*, No. 2:17-cv-503, (E.D. Va. Nov. 15, 2019), ECF No. 808. (Dr. Petrie of CSIRO); *see also* MTEA at 14, Schedule A (listing "D5Des(Tc)" and "D6Des(Ot)" as BASF materials).

The Agreement's criteria for joint ownership of the '792 patent are met by evidence that was not disputed, that genes that were provided by BASF for the collaboration were explicitly described in the '792 patent claims.[1] There

---

[1] The panel majority criticizes this dissent for referring to CSIRO's trial testimony that the Δ6 desaturase of *Ostreococcus tauri* and the Δ5 desaturase of *Thrausochytrium* sp. "were BASF materials provided under the agreement." Maj. Op. at 43–44 n.15. This testimony was not disputed before the jury, and these facts are not challenged on this appeal. The majority's reversal of the jury verdict on the '792 patent is contrary to undisputed facts and contrary to the agreed jury instruction applying the MTEA. The majority's ruling does not meet the requirements for appellate reversal of jury verdicts. *Lust v. Clark Equip. Co.*, 792 F.2d 436, 437–38 (4th Cir. 1986) ("'[O]ur power of review continues to be limited by the Seventh Amendment, which provides that 'no fact tried by a jury, shall be otherwise reexamined in any Court of the United

was no evidence, no argument, that the BASF materials recited in the '792 claims are other than BASF materials provided under the Agreement. *See, e.g.*, Trial Tr. vol. 4, 712:6–24; 722:8–17; 723:23–724:9, *BASF v. CSIRO*, No. 2:17-cv-503, (E.D. Va. Nov. 15, 2019), ECF No. 804. (discussing the *Thrauschytrium* sp. Δ5 desaturase). There was substantial evidence that the '792 patent incorporates information and results for which the Agreement provides joint ownership.

A reasonable jury could have found that the '792 subject matter was developed using genetic material and information provided by BASF for the collaboration. It is not disputed that the '792 patent describes, and the claims recite, both the *Ostreococcus tauri* Δ6 desaturase and the *Thraustochytrium* sp. Δ5 desaturase genes that BASF provided. The jury could reasonably find joint ownership, applying the law set forth in the agreed jury instructions. *See Hana Fin., Inc. v. Hana Bank*, 574 U.S. 418, 424 (2015) ("[T]he jury's constitutional responsibility is not merely to determine the facts, but to apply the law to those facts and draw the ultimate conclusion. . ." (quoting *United States v. Gaudin*, 515 U.S. 506, 514 (1995)); *Beriont v. GTE Labs., Inc.*, 535 F. App'x 919, 926 n.2 (Fed. Cir. 2013) ("[P]atent ownership is a mixed question of law and fact").

The district court appropriately sustained the verdict of co-ownership of the '792 patent. *See Price v. City of*

States, than according to the rules of the common law. . . . We may not, therefore, weigh the evidence, pass on the credibility of witnesses, or substitute our judgment of the facts for that of the jury. . . . Instead, we must view the evidence in the light most favorable to the party against whom the motion is made, giving him the benefit of all reasonable inferences from the evidence.'" (quoting *Tights, Inc. v. Acme-McCrary Corp.*, 541 F.2d 1047, 1055–56 (4th Cir. 1976) (alterations and ellipses original))).

Charlotte, 93 F.3d 1241, 1249 (4th Cir. 1996) (the jury verdict must be sustained if it is supported by substantial evidence). This court errs in ruling otherwise.

The verdict as to the five other patents appears to be sustainable

Although the questions are close as to at least two of the other five patents, substantial evidence may support the jury verdicts that the five patents awarded to CSIRO are not jointly owned. "[I]f reasonable minds could differ, we must affirm." *Baynard v. Malone*, 268 F.3d 228, 235 (4th Cir. 2001).

Conclusion

My colleagues misapply the Agreement and erroneously overturn the jury's verdict that the '792 patent is jointly owned by BASF and CSIRO. I respectfully dissent.