

United States District Court  
Northern District of California

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UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA

ILLUMINA, INC., et al.,  
Plaintiffs,  
v.  
BGI GENOMICS CO., LTD, et al.,  
Defendants.

Case No. [19-cv-03770-WHO](#)  
20-cv-1465-WHO

**REDACTED – RULINGS FOLLOWING  
THE PRETRIAL CONFERENCE**

In advance of the Pretrial Conference on October 18, 2021, I provided Tentative Rulings. Dkt. No. 467.<sup>1</sup> At the conference itself, I heard argument on several motions. My rulings on all of the pending motions follow.

**I. MOTIONS TO STRIKE AND EXCLUDE EXPERT REPORTS**

**A. Illumina’s Motion to Exclude the Opinions of Drs. Hrdlicka, Metzker, and Kearl – Dkt. No. 426**

**1. Opinions of Drs. Hrdlicka and Metzker**

Illumina’s motion to exclude the opinions of Drs. Metzker and Hrdlicka regarding “the Illumina inventors’ state of mind at the time of the invention and their alleged reliance on prior art references” is **GRANTED**. Dkt. No. 426 (“Mot.”) at 4.

In deciding Illumina’s motion for summary judgment, I reviewed the evidence concerning the inventors’ state of mind at the time of the invention. I granted summary judgment in Illumina’s favor that no inequitable conduct had occurred. Dkt. No. 424. In light of that ruling, Illumina argues that the inventors’ intent and alleged misconduct is irrelevant to the remaining issues in the case and that the experts’ opinions on alleged bad intent to deceive the PTO cannot

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<sup>1</sup> All docket citations are to Case No. 19-cv-03770 unless stated otherwise.

1 help the trier of fact to determine a fact in issue. *Id.* at 3–4; *see, e.g.*, Dkt. No. 436-6 (“Metzker  
2 Rep.”) ¶¶ 158, 270, 272–74; Dkt. No. 426-2 (“Hrdlicka Rep.”) ¶¶ 1, 12. BGI responds that it does  
3 not plan to make arguments regarding the inventors’ conduct before the PTO. Dkt. No. 456 at  
4 2–3. But it contends that the proffered evidence regarding the inventors’ reliance on Zavgorodny  
5 2000 and Kovacs is highly relevant to the issue of obviousness. Dkt. No. 437 (“Opp.”) at 6–11.

6 BGI argues that Metzker and Hrdlicka’s opinions that the inventors relied on the  
7 Zavgorodny and Kovacs references are based on a detailed analysis of the sequencing  
8 methodologies described in the inventors’ notebooks and a comparison of those notebooks to the  
9 prior art and are not speculative. Opp. at 1, 4–9. Metzker and Hrdlicka conclude that, contrary to  
10 the inventors’ claims that they have never seen references to Zavgorodny or Kovacs, the inventors  
11 were following the methodologies from the prior art. *Id.*

12 Moreover, BGI contends that Metzker does not improperly rely on the inventors’ path to  
13 demonstrate obviousness but that his opinions are firmly rooted in prior art and supported by his  
14 and Hrdlicka’s analysis of the inventors’ notebooks and testimony of how the inventors arrived at  
15 azidomethyl as a blocking group. Opp. at 2. Although it admits that Hrdlicka does not offer any  
16 opinion on obviousness, it points out that Metzker relies on Hrdlicka’s analyses when opining on  
17 obviousness. *Id.* at 2. It acknowledges that the inventors’ own path itself never leads to a  
18 conclusion of obviousness, but it contends that courts nonetheless have held that the process by  
19 which an inventor has developed a purported invention can be relevant to multiple aspects of  
20 obviousness (e.g., predictability and expectations in the field, the motivation to combine prior art  
21 references, and a reasonable expectation of success that the combination of references would work  
22 to arrive at the claimed subject matter). *Id.* at 12.

23 According to BGI, the inventors’ reliance on Zavgorodny and Kovacs is relevant to the  
24 predictability and expectations in the field, which include the synthesis and use of modified  
25 nucleotides. For example, in *Rothman*, the Federal Circuit found the patent at issue obvious where  
26 the inventor had combined “off-the-shelf” materials, i.e., a preexisting tank top and a shelf bra  
27 with a preexisting nursing bra design. *Rothman v. Target Corp.*, 556 F.3d 1310, 1319 (Fed. Cir.  
28 2009). In this case, BGI contends that the inventors’ combination of prior art protocols in

1 Zavgorodny and Kovacs to arrive at their purported invention is akin to the combination of  
2 “off-the-shelf” materials. Illumina responds that *Rothman* is distinguishable, however, because it  
3 concerns straightforward mechanical patents and the inventors’ path was not central to the  
4 obviousness finding.

5 BGI also argues that the inventors’ reliance on these two prior art references is relevant to  
6 the real world motivation and level of difficulty to combine these references. Opp. at 13– 14. It  
7 points to *Leapfrog*, where the Federal Circuit found the patent at issue obvious because the  
8 patentee had simply updated an old, well-known technology, through combination with a newer,  
9 well-known technology. *Leapfrog Enterprises, Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161  
10 (Fed. Cir. 2007). Likewise, BGI emphasizes Hrdlicka’s report, which opines on the relative skill  
11 level of Dr. Smith and how the synthetic protocols used by Dr. Wu and Smith only required  
12 “routine modifications” from the published literature. See Dkt. No. 436-8 (“Hrdlicka Rep.”)  
13 ¶¶ 103, 107–108, 109.

14 As Illumina asserts, none of BGI’s cases “involved a situation where a defendant sought to  
15 present expert opinions about the inventors’ state of mind in an unsubstantiated attempt to retrace  
16 the inventors’ path to show obviousness.” Dkt. No. 452 (“Reply”) at 6. Instead, *Rothman* and  
17 *Leapfrog* properly considered what a person of skill in the arts (“POSITA”) would have found  
18 obvious. See *Rothman*, 556 F.3d at 1320 (“the record is replete with evidence that one of ordinary  
19 skill would have been motivated and able to combine an existing tank top with an existing nursing  
20 bra to arrive at the claimed invention” such as expert testimony opining that she arrived at the  
21 same design); *Leapfrog*, 485 F.3d at 1162 (“We agree with the district court that one of ordinary  
22 skill in the art of children’s learning toys would have found it obvious to combine the Bevan  
23 device with the SSR to update it”).

24 Neither the Metzker nor the Hrdlicka report discloses the theories of “predictability and  
25 expectations in the field” and “level of difficulty” or explains how such theories are relevant to  
26 their obviousness analysis. In fact, BGI admits that “Hrdlicka does not offer any opinion on  
27 obviousness at all.” Opp. at 2. Illumina notes that Metzker only makes cursory and general  
28 statements related to obviousness. See Metzker Rep. ¶¶ 158, 259.

1 Even if BGI's new theories were disclosed in the expert reports, the opinions regarding the  
2 inventors' alleged reliance on Zavgorodny and Kovacs are legally improper and irrelevant because  
3 they involve use of improper hindsight to retrace the alleged path of the inventors. As the Federal  
4 Circuit has repeatedly held, "The inventor's own path itself never leads to a conclusion of  
5 obviousness; that is hindsight. What matters is the path that the person of ordinary skill in the art  
6 would have followed, as evidenced by the pertinent prior art." *Otsuka Pharm. Co. v. Sandoz, Inc.*,  
7 678 F.3d 1280, 1296 (Fed. Cir. 2012). "Because patentability is assessed from the perspective of  
8 the hypothetical person of ordinary skill in the art, information regarding the subjective  
9 motivations of inventors is not material." *Life Techs., Inc. v. Clontech Lab'ys, Inc.*, 224 F.3d 1320,  
10 1325 (Fed. Cir. 2000). Such opinions would improperly inject impermissible hindsight into the  
11 analysis of obviousness. *See* 35 U.S.C. § 103 ("Patentability shall not be negated by the manner in  
12 which the invention was made.").

13 BGI contends that unlike *Life Techs* and *Otsuka*, Metzker and Hrdlicka's opinions that the  
14 inventors relied on and combined various prior art references are rooted in prior art and are not  
15 seeking to prove obviousness through the inventors' development efforts. *Id.* It also argues that  
16 such testimony is even more relevant given that Illumina's expert, Romesberg, denies the  
17 relevance of the Zavgorodny reference. Hearing Tr. at 29; *see also* Dkt. No. 456 at 5 (citing Dkt.  
18 No. 436-10 ("Romesberg Reb. Rep.") ¶¶ 79–80, 116–17). During the pretrial conference, BGI  
19 cited two forty-year old cases holding that "If the inventor consults a reference in his search for a  
20 solution to the problem, this act constitutes an acknowledgment by the problem-solver of what he  
21 considered to be relevant prior art." Hearing Tr. at 28, 32; *Consol. Aluminum Corp. v. Foseco Int'l*  
22 *Ltd.*, 1988 WL 391250, at \*36 (N.D. Ill. Oct. 31, 1988), *aff'd*, 716 F. Supp. 316 (N.D. Ill. 1989),  
23 *aff'd*, 910 F.2d 804 (Fed. Cir. 1990) (citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1535  
24 (Fed. Cir. 1983)). It argued that the testimony is admissible because where, as here, an inventor  
25 looked at prior art references, it is an admission that the reference is within the field of the prior  
26 art. Hearing Tr. at 29.

27 Theories that retrace the inventors' experimental steps or their alleged reliance on prior  
28 art" involve improper hindsight. "It does not matter whether the inventors reached their invention

1 after an exhaustive study of the prior art, or developed their [invention] in complete isolation. The  
2 only inquiry is whether the teachings of [prior art], in combination with other relevant prior art,  
3 would have rendered the claimed invention obvious to one of ordinary skill in the art; this inquiry,  
4 as a matter of law, is independent of the motivations that led the inventors to the claimed  
5 invention.” *Life Techs*, 224 F.3d at 1325. Metzker and Hrdlicka’s opinions about the inventors’  
6 alleged reliance on certain prior art concern the path that the inventors took, not what a POSITA  
7 would consider obvious, and are therefore improper.

8 Finally, BGI argues that the inventors’ credibility is not a “collateral issue,” and the  
9 inventors’ alleged reliance on certain prior art is probative in assessing their credibility. *See*  
10 *Hospira, Inc. v. Amneal Pharmaceuticals, LLC*, 285 F. Supp. 3d 776, 790 (D. Del. 2018) (finding  
11 the patentee’s internal documents were “probative in assessing the credibility of Plaintiff’s  
12 witnesses’ testimony regarding reasonable expectation of success”). Witness credibility is for the  
13 jury and not the expert to decide. *See Newell Companies, Inc. v. Kenney Mfg. Co.*, 864 F.2d 757, 787  
14 (Fed. Cir. 1988) (“Determining the weight and credibility of the evidence is the special province of the  
15 trier of fact.”). Given my prior finding of no inequitable conduct, any marginal relevance of these  
16 opinions would be greatly outweighed by the risk of prejudice to Illumina, confusing the issues,  
17 and misleading the jury.

## 18 2. Opinions of Dr. Metzker Related to the ’973 Patent

19 Illumina’s motion to exclude portions of Metzker’s opinions on the invalidity of the ’973  
20 Patent is **GRANTED**. *See* Mot. at 12 (seeking to exclude Dkt. No. 425-5 (“Metzker Rep.”))  
21 ¶¶ 284–85, 298–300).

22 Illumina contends that Metzker “should be precluded from providing opinions that  
23 [improperly] construe Claim 13 of the ’973 Patent to require the same individual strand of target  
24 DNA be monitored over multiple cycles in a sequencing by synthesis (‘SBS’) reaction.” *Id.*  
25 Claim 1 recites, “A method for determining the sequence of a target single-stranded  
26 polynucleotide, comprising monitoring the sequential incorporation of complementary  
27 nucleotides, wherein at least one incorporation is of a nucleotide having a removable 3’-OH  
28 blocking group . . . .” 1465 Dkt. No. 1-1 (“’973 Patent”) at 86:24–29. The term at issue is

1 “monitoring the sequential incorporation of complementary nucleotides,” which I held did not  
2 require a construction. Dkt. No. 216 (“Claim Construction Order”) at 12.

3 At claim construction for this term, BGI proposed “sequentially incorporating labeled  
4 nucleotides and monitoring their incorporation over multiple cycles in a sequencing by synthesis  
5 reaction.” *Id.* During the claim construction briefing, Metzker explained that “sequencing by  
6 synthesis” refers to the “cyclic reversible termination” method recited in the claims. *Id.* He said  
7 that the method “cyclic reversible termination” requires that the steps of the SBS reaction be  
8 performed “in multiple rounds on the same growing primer hybridized to the same target single-  
9 stranded polynucleotide attached to a solid-support to determine the sequence of the target single-  
10 stranded polynucleotide.” Dkt. No. 191-13 (“Metzker Decl.”) at 30; *see also* Dkt. No. 426-4  
11 (“Metzker Depo.”) at 20–21.

12 I rejected BGI’s proposal for two reasons. First, I rejected the “labeled nucleotides”  
13 limitation because “[w]hile the claimed method involves detecting the type of nucleotide  
14 incorporated into the growing strand, the precise means of detecting the nucleotide type is not the  
15 focus of the invention.” Claim Construction Order at 10–11. Second, I rejected the “multiple  
16 cycles in a sequencing by synthesis reaction” limitation because the phrase “sequencing by  
17 synthesis” was “generally ‘ambiguous’” and therefore adding the language was unlikely to clarify  
18 the meaning of the relevant term. *Id.* at 12.

19 In Metzker’s opening expert report, he again opines that claims 1 and 13 require the use of  
20 a SBS method, as defined by him: “monitoring the sequential incorporation of complementary  
21 nucleotides on the same growing primer hybridized to the same target single-stranded  
22 polynucleotide” in multiple cycles. Illumina asserts that Metzker relies on BGI’s rejected  
23 definition of SBS in order to opine that “the ’973 Patent does not support enablement and written  
24 description of the claims.” Mot. at 14; *see, e.g.*, Metzker Rep. ¶ 284 (“The claim calls for  
25 *monitoring the sequential incorporation* of the blocked nucleotides as they are being added to a  
26 primer in each cycle in a fashion that is complementary to a single-stranded target . . . Once on the  
27 gel, no further monitoring of the primer/polynucleotide complex containing a complementary  
28 nucleotide can occur and further SBS cycles would be monitored from a different

1 primer/polynucleotide complex”); *id.* ¶ 285 (“If you removed the extended primer of the  
2 primer/polynucleotide complex to determine by mass spectrometry what nucleotide had just been  
3 added, you would not be able to put that same extended primer back into the experiment, have it  
4 hybridize to the same single-stranded target nucleic acid, and carry on the SBS procedure”); *id.*  
5 ¶ 299 (“[T]he data presented in Figures 5 and 6 do not show the monitoring the sequential  
6 incorporation of complementary nucleotides on the same growing primer hybridized to the same  
7 target single-stranded polynucleotide required by claims 1 and 13 of the ’973 Patent”).

8 BGI responds that Metzker’s opinions are consistent with the Claim Construction Order.  
9 *Opp.* at 16. It asserts that Metzker’s opinion is proper because it concerns the “undisputed  
10 requirement” that the term at issue “must be performed using an SBS method, not some other  
11 method.” *Id.* at 18. As a result, the dispute is not about whether the claimed method requires a  
12 type of SBS method but rather that the claims require “monitoring the incorporation of block  
13 nucleotides into [a] single-stranded polynucleotide.” Dkt. No. 474 (“Hearing Tr.”) at 41–42. It  
14 argues that this interpretation does not contradict the Claim Construction Order because I did not  
15 address this issue. Dkt. No. 474 (“Hearing Tr.”) at 40.

16 But Metzker’s opinions are not simply that the claimed method requires monitoring the  
17 sequential incorporation of nucleotides into a single-stranded polynucleotide. He interprets the  
18 claims as requiring “monitoring the sequential incorporation of complementary nucleotides on the  
19 *same* growing primer hybridized to the *same* target single-stranded polynucleotide,” which is the  
20 construction I rejected during claim construction. *See* Metzker Rep. ¶ 299; *see also id.* ¶¶ 284–85.  
21 Although I acknowledged that there did not seem to be a “real dispute between the parties that the  
22 ’973 Patent claims a method that involves a sequencing by synthesis reaction,” I did not limit the  
23 term to require a SBS method because the parties had disputed the meaning of SBS. For example,  
24 contrary to Metzker’s definition of SBS, Illumina’s expert Dr. Romesberg explains that “an SBS  
25 reaction can also be run on many copies of the same target DNA at the same time, and in each  
26 cycle incorporation can be detected by taking a sample of the full reaction, thus providing the  
27 sequence of original target DNA without detecting the same, single target DNA during each  
28 cycle.” *Mot.* at 14 n.5 (citing 1465 Dkt. No. 420-4 (“Romesberg Reb. Rep.”) ¶ 219). The

1 problem with Metzker’s report is that it depends on an interpretation of the term that I rejected,  
2 i.e., that the claimed method *requires* the SBS method as defined by him.

3 BGI also asserts that Metzker’s opinion in paragraph 300 is that the ’973 Patent does not  
4 sufficiently describe or enable a method where “as each nucleotide is incorporated it is detected,”  
5 which is “what is required for monitoring the sequential incorporation as defined by the court.”  
6 Opp. at 17 (citing Claim Construction Order at 10 (“While the *claimed method involves detecting*  
7 *the type of nucleotide incorporated into the growing strand*, the precise means of detecting the  
8 nucleotide type is not the focus of the invention.”)). According to BGI, my rejection of its  
9 proposed addition of SBS into the construction is irrelevant to “whether the claim requires  
10 detecting each nucleotide as it is incorporated into a growing strand.” Opp. at 18. But I did not  
11 limit the claim to a specific method, i.e., a method where “as each nucleotide is incorporated it is  
12 detected.” Instead, I acknowledged that “the precise means of detecting the nucleotide type  
13 [incorporated into the growing strand] is not the focus of the invention” and that claim 1 “does not  
14 specify a particular method for detecting the nucleotide type.” Claim Construction Order at 10.

15 BGI argues that even if Illumina were correct that Metzker’s interpretation of the claim  
16 scope is narrower than that allowed by the Claim Construction Order, the ’973 Patent must  
17 provide adequate written description in support of and enablement of the full scope of the claim.  
18 *Id.* But because Metzker’s interpretation is not simply narrower but incorrect, BGI’s argument  
19 fails. *See Huawei Techs., Co, Ltd v. Samsung Elecs. Co., Ltd.*, 340 F. Supp. 3d 934, 968 n.24 (N.D.  
20 Cal. 2018) (holding that “an expert’s opinion that seeks to limit the full scope of a term’s plain and  
21 ordinary meaning must be stricken” because “an improperly narrow construction technically falling  
22 within the bounds of a plain and ordinary meaning would still inappropriately delve too deep into  
23 claim construction.”); *see also Cordis Corp. v. Boston Sci. Corp.*, 658 F.3d 1347, 1357 (Fed. Cir.  
24 2011) (finding that it “must disregard” expert testimony that was based on an incorrect interpretation  
25 of a claim term).

### 26 3. Opinions of Dr. Kearl

27 Finally, Illumina’s motion to exclude a portion of BGI’s damages expert, Dr. Kearl’s  
28 opinions is **DENIED** because it centers on a factual dispute regarding the parties’ relative



1 bargaining power at the hypothetical negotiation. Illumina may cross-examine Kearn about his  
2 methodology; its motion to exclude portions of his report is denied.

3 Illumina argues that Kearn's opinions are based on a methodology that the Federal Circuit  
4 has expressly rejected as unreliable. Mot. at 15. Kearn explains that in a typical licensing  
5 negotiation, the parties compromise and the agreed royalty amount "is something less than the  
6 licensee's maximum willingness to pay" and there is generally a "bargaining split." Dkt. No.  
7 425-8 ("Kearn Rep.") ¶ 23. He opines that for the hypothetical negotiation in 2014 between BGI  
8 and Illumina about a license to perform R&D in the U.S., a 50/50 bargaining split is appropriate  
9 because BGI and Illumina "are on substantially equal footing" and "parties with equal strength  
10 arrive at an even division of the benefits with substantial frequency." *Id.* ¶ 25. He concludes that  
11 the parties would have "equally split[]" the apportioned discounted value and reached an  
12 agreement of a lump-sum royalty of [REDACTED]. *Id.*

13 Illumina contends that this analysis is based on the "Nash Bargaining Solution" ("NBS"),  
14 which has been rejected as unreliable by the Federal Circuit where the premises of the theorem do  
15 not tie to the actual facts of the case. *Virnetx, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1332 (Fed.  
16 Cir. 2014) ("[W]e agree with the courts that have rejected invocations of the Nash theorem  
17 without sufficiently establishing that the premises of the theorem actually apply to the facts of the  
18 case at hand. The use here was just such an inappropriate 'rule of thumb.'"). In the NBS, two  
19 bargainers agree to receive "the same money profit" after certain premises are met. *Id.* at 1325.  
20 Illumina argues that Kearn fails to establish one of the premises, "equal bargaining power"  
21 between the parties. *Robocast, Inc. v. Microsoft Corp.*, 2014 WL 350062, at \*2 (D. Del. Jan. 29,  
22 2014) (citing *Oracle*, 798 F. Supp. 2d at 1119) (excluding an expert opinion because it did not  
23 discuss the relative bargaining power of the parties and even if it had, the facts provided "little or  
24 no basis for a 50/50 split."). According to Illumina, there was no equal bargaining power in 2014  
25 because Illumina owned the "patents-in-suit which cover foundational azido-blocking technology  
26 that is core to SBS" and Illumina has a policy of [REDACTED]  
27 and to this day has [REDACTED]. Mot. at 16 (citing Dkt. No. 381-6 ("Prowse  
28 Rep.") ¶¶ 117, 164; Dkt. No. 425-8 ("Kearn Reb. Rep.") ¶ 43).

1 BGI responds that Kearl does not rely on a mere “rule of thumb” or NBS and that his  
2 bargaining split opinion is reliably tied to the facts of this case. Opp. at 19. Kearl repeatedly  
3 testified that he has not “relied wholly and solely on the Nash bargaining model.” Dkt. No. 450-6  
4 (“Kearl Depo.”) at 128–29, 131, 133–34. Instead, he cites to a “very large literature on empirical  
5 work in economics, game theory, and experimental economics that shows the parties that are in  
6 roughly the same position . . . typically divide a surplus in half.” *Id.* at 127–28.

7 BGI also argues that Kearl reliably tied his opinion to the facts of the case. For example,  
8 Kearl “uses the WIPO Innovation Output Indices to calculate the incremental benefit to BGI of  
9 conducting the accused R&D in the U.S. versus China, applying the innovation output differential  
10 for each year to the R&D expenditures incurred in that year, and again opines that a 50:50  
11 bargaining split is appropriate, given that the parties were on substantially equal footing.” *Id.* at  
12 20 (citing Kearl Reb. Rep. ¶¶ 33, 39, 41). Kearl also points to Illumina’s filing for a preliminary  
13 injunction as evidence that it saw BGI as an equal competitor. *Id.* ¶¶ 25, 49–50. Illumina rejects  
14 this argument and contends that Kearl does not address the importance of the technology at issue,  
15 the nature of the industry, or the past licensing history of the parties. *Id.* Kearl opined, however,  
16 that both companies were innovating through their R&D, investing substantially in R&D, and had  
17 significant sequencing capabilities, and therefore had equal bargaining power. *Id.* at 20 (citing  
18 Kearl Reb. Rep. ¶¶ 25, 48, 55).

19 Illumina’s motion, at best, targets a factual dispute regarding the parties’ relative  
20 bargaining power at the hypothetical negotiation Illumina’s contentions are better suited for  
21 cross-examination.

22 **B. BGI’s Motion to Strike and Exclude the Amended Report of Dr. Prowse – Dkt.**  
23 **No. 428**

24 BGI’s motion to exclude the amended report of Illumina’s damages expert (Prowse) is  
25 **GRANTED.** In his amended report, Dr. Prowse went beyond the scope of amendments permitted  
26 in my order, Dkt. No. 413. The entirety of his amended report is struck without leave to amend  
27 and the portions of his original report that I ordered struck without prejudice shall now be struck  
28 with prejudice. Illumina may rely on its return on investment damages theory, i.e., Prowse’s first

1 datapoint in his original report, Dkt. No. 381-6.

2 In my prior order granting in part and denying in part BGI’s motion to strike the opinions  
3 of Dr. Prowse, I granted BGI’s motion to strike Prowse’s testimony related to his reliance on the  
4 2014 World Intellectual Property Organization’s (“WIPO”) Index to the exclusion of data from  
5 subsequent years with leave to amend. Dkt. No. 413 (“Prowse Order”) at 10. I concluded that  
6 Prowse had cherry-picked data from 2014 that best supported his conclusion that R&D in the U.S. is  
7 more valuable than in China when he calculated the value of R&D in the U.S. as compared to China  
8 between 2014 and 2020, the [REDACTED] data point. *Id.* at 8–10. I ordered that Prowse either  
9 “better explain the basis for this opinion—e.g., how the WIPO indexes indicate that other factors  
10 improved China’s output scores and why that justifies ignoring the post-2014 differentials, especially  
11 if there is no discussion about the impact of the biopharma industry or DNA sequencing on China’s  
12 innovation output score—or revise it—e.g., apply the post-2014 differentials—in order to testify about  
13 it.” *Id.* at 10. In other words, I ordered Prowse to either explain why he ignored the post-2014 WIPO  
14 scores in his [REDACTED] data point or change his opinion and apply the post-2014 differentials.

15 I also struck Prowse’s conclusion that “the average apportioned amount of a reasonable  
16 royalty” based on the two aforementioned data points “is [REDACTED]” and his addition of [REDACTED]  
17 [REDACTED] because “the *Georgia-Pacific* factors are generally upward.” *Id.* at 13–14 (citing Prowse Rep.  
18 ¶ 216). I concluded that Prowse had failed to explain why the *Georgia-Pacific* factors impacted the  
19 royalty calculation to increase it by [REDACTED]. I ordered Prowse to “explain why averaging was  
20 appropriate and why and how he decided to add [REDACTED] to the total.” *Id.* at 14.

21 Instead of addressing my points in his Amended Report, however, Prowse abandoned his  
22 reliance on the [REDACTED] datapoint and the [REDACTED] addition. Amended Rep. ¶ 18. He  
23 concluded that the “amount of the reasonable royalty based on the facts and circumstances of this  
24 case” is [REDACTED], i.e., the first datapoint in his original report. Had this been Prowse’s only  
25 amendment, his Amended Report would have been proper.

26 But Prowse went beyond this minimal amendment to add new opinions and evidence  
27 supporting his [REDACTED] datapoint and criticized the rebuttal opinions of Dr. Kearl despite not  
28 being a rebuttal expert. Dkt. No. 441 (“Prowse Reply”) at 1. Illumina justifies these new additions by

1 mischaracterizing the Prowse Order. It contends that I “sought additional explanation and  
2 consideration by Dr. Prowse” on two issues: “1) the effect of the WIPO differential values from  
3 2014–2020” on the [REDACTED] data point; and “2) the weighing of *Georgia-Pacific* factors.” Dkt.  
4 No. 435 (“Prowse Opp.”) at 1. That is not what the Prowse Order allowed. Because Prowse no longer  
5 relied on the [REDACTED] datapoint and the [REDACTED] addition, further explanation about why he  
6 did not apply the post-2014 differentials or the *Georgia-Pacific* factors is unnecessary and improper.

7 Prowse added new sources regarding BGI’s rationale for acquiring CGI in order to support the  
8 “soundness of the [REDACTED] number.” Dkt. No. 427-8 (“Prowse Depo.”) at 269; *see* Amended  
9 Rep. at 16 n.53–59. He also emphasized BGI’s plan “to provide StandardMPS reagent kits when  
10 necessary for KOLs to validate new applications or for comparative research purposes” to support his  
11 argument that BGI understood the benefits of conducting R&D in the U.S. as opposed to China.  
12 Amended Rep. ¶ 3 (referencing BGI’s opposition to the preliminary injunction brief). He adds new  
13 opinions about the alleged risks of conducting the R&D activities outside of the U.S. and BGI’s refusal  
14 to shift activities away from the U.S. despite its awareness of potential infringement. *Id.* ¶ 17. He also  
15 opines that “BGI would have considered its investment in CGI at the time of the hypothetical  
16 negotiation in 2014 relative to the amount for the R&D license,” [REDACTED]. *Id.* ¶ 18. Illumina  
17 contends that the third paragraph provides further evidence for why the WIPO calculation based on the  
18 2016–2020 should not be considered and paragraphs 17–18 directly responds to the “weighing of the  
19 *Georgia-Pacific* factors.” Prowse Opp. at 6, 8–9. Again, these opinions are outside of the scope of  
20 amendments I allowed in the Prowse Order.

21 Furthermore, Prowse improperly attacks Kearl’s analysis for allegedly “1) fail[ing] to  
22 understand the difference between output and return; 2) inappropriately discount[ing] his calculation  
23 back to the hypothetical negotiation date; and 3) inappropriately appl[y]ing a 50% bargaining split.”  
24 Amended Rep. ¶ 8. Illumina responds that Prowse’s analysis is within the scope of the Prowse Order  
25 because these arguments are part of his opinion on the WIPO differential data point based on the  
26 2016–2020 data points. Prowse Opp. at 4. But again, these arguments are improper.<sup>2</sup>

27 \_\_\_\_\_  
28 <sup>2</sup> In addition, Prowse’s replies to Kearl’s rebuttal report are prejudicial because his new opinions  
contradict Kearl’s opinions even though no reply reports were contemplated in the case schedule.

1 **II. MOTIONS IN LIMINE – DKT. NOS. 442, 443**

2 **A. Illumina’s MILs**

3 **1. Exclude evidence regarding objective indicia not disclosed in BGI’s expert report**

4 **GRANTED.** If an expert's testimony is not found in his or her expert report, that evidence  
5 will not be allowed at trial.

6 **2. Exclude arguments that inventors had an intent to deceive or otherwise engaged in wrongful conduct before the PTO or argue that the patents are obvious by reference to the inventor’s path to the invention**

7 **GRANTED** for the same reasons explained above. *See* Part I.A.1.

8 **3. Exclude evidence or arguments regarding BGI patents other than its patent portfolio generally for background**

9 **DEFER ruling.** Generally, references to patents not at issue are irrelevant except as  
10 background. Because context is necessary to determine relevance, I will defer ruling on this  
11 motion.  
12

13 **4. Exclude evidence and arguments related to any antitrust allegations, alleged undue market power or anticompetitive behavior**

14 **GRANTED** as to any assertion of antitrust claims (e.g., Illumina is a monopolist) or  
15 conduct unrelated to the issues in this case (e.g., acquisition of Grail). **DENIED** as to evidence of  
16 allegedly anticompetitive conduct that is related to the issues in this case to rebut Illumina’s  
17 defense of commercial success (e.g., attempts to acquire CGI and Pacific Biosciences (“PacBio”),  
18 emails discussing how Illumina is litigious, Illumina’s market share).  
19

20 During the pretrial conference, Illumina sought to exclude arguments related to its failed  
21 acquisition of CGI and PacBio and its successful acquisition of Grail. Because CGI and PacBio  
22 are competitors in the same field at issue here, i.e., sequencing technology, evidence or arguments  
23 related to CGI and PacBio are proper. In contrast, Grail is a cancer diagnostics company, not a  
24 sequencing company. Illumina’s acquisition of Grail is therefore irrelevant to commercial success  
25 in the material market.

26 As I tried to make clear during the pretrial conference, the parties should not use  
27

28 \_\_\_\_\_  
Reply at 10.

1 inflammatory language or seek to prejudice the jury with irrelevant aspersions. And if a party is  
 2 attacked, a measured response will be allowed. For example, although I hold elsewhere that the  
 3 parties should not discuss their foreign litigation, if BGI implies that Illumina is litigious, Illumina  
 4 may respond with its success rate in such cases. *See* BGI MIL No. 6. This admonition applies to  
 5 every evidentiary issue raised in the parties' motions in limine. Context matters with respect to  
 6 evidentiary rulings, and if a party opens the door I will not hesitate to reconsider the rulings in this  
 7 Order.

8 **5. Exclude evidence and argument of negative impacts of a verdict against**  
 9 **BGI and of use of BGI products for COVID-related purposes**

10 **GRANTED** as to evidence and arguments of negative impacts of a verdict (e.g., a verdict  
 11 against BGI would impair COVID-relief efforts). **DENIED** as to discussion of BGI's  
 12 COVID-related products as background and BGI's rebuttal to potential arguments about the  
 13 negative impacts of moving its research and development outside the U.S. If BGI introduces  
 14 evidence about its COVID-related products, Illumina may offer evidence in rebuttal. *See* BGI  
 15 MIL No. 1. The parties are reminded to stick to the core issues in this case, which do not include  
 16 whether BGI is linked to the Chinese government, is developing COVID-relief inventions, or  
 17 whether Illumina is litigious or a monopolist.

18 **6. Exclude BGI from alleging that Illumina copied BGI's technology or**  
 19 **observed BGI's sequencers at BGI premises**

20 **DENIED.** If Illumina introduces evidence that BGI copied its products or gathered  
 21 intelligence on its products, then BGI may do the same and vice versa. These allegations are  
 22 relevant to willfulness and industry practice.

23 **7. Exclude BGI from referencing attorney advice and introducing**  
 24 **testimony on subject matter over which privilege was asserted during**  
 25 **depositions**

26 **GRANTED.** BGI agrees to not reference its company policy of licensing patents that it  
 27 may infringe to suggest that the lack of a license for Illumina's asserted patents shows that BGI  
 28 believed the patents are invalid or not infringed. BGI also agrees to not reference its general  
 policy or practice of obtaining opinions of counsel when it becomes aware of patents that it may  
 infringe. If a witness refused to offer testimony because he or she testified that his or her personal

1 opinions were mixed with legal opinions, then such testimony cannot be offered. Invocations of  
 2 privilege in a witness's testimony should be excised so that opposing counsel has the ability to  
 3 cross. Witnesses are able, however, to testify to non-privileged opinions.

4 **8. Exclude BGI from referring to Dr. Romesberg's personal life or**  
 5 **involvement in Title IX investigation**

6 **GRANTED.**

7 **9. Preclude testimony from BGI's expert on claims of the '025 Patent that**  
 8 **he did not address in his expert report**

9 **DENIED** as to Metzker's testimony about claims 31, 33, 34, 42, 47, and 50 of the '025  
 10 Patent. Illumina contends that Metzker does not address the "pendant arm" limitation that  
 11 "requires that after the linker that connects the base and the fluorophore" is "removed from the  
 12 base of the nucleotide, a part of the linker remains attached to the base." Hearing Tr. at 54. But  
 13 Metzker opines that these claims and their limitations are simply variations on previous claims and  
 14 limitations that he did address. *See* Dkt. No. 456-2 ("Metzker Rep.") ¶¶ 303–15 (addressing  
 15 claims such as that "the linker [is] attached to the 7-deaza position of the base or at the 5' position  
 16 of the base" and opining that "it was well-known to those of ordinary skill in the art to attach  
 17 cleavable linkers to the base of a modified nucleotide."). For example, Metzker opines, "[M]any  
 18 of the remaining independent claims recite a chemical structure that defines each of the four bases  
 19 (*i.e.*, Claims 35, 43, 51, and 59 of the '025 Patent) and then simply identifies the same limitations  
 20 discussed previously to them." Metzker Rep. ¶ 315. Such limitations are similar to the pendant  
 21 arm limitation: "wherein . . . Linker is a cleavable linker comprising a cleavable moiety, Label is  
 22 a fluorophore, and upon cleavage of the cleavable moiety, Label is removed and part of Linker  
 23 remains attached to the nucleobase." *See e.g.*, 1465 Dkt. 1-3 ("'025 Patent") at 25:50–26:2. As a  
 24 result, the pendant arm limitation is simply a variation of previous limitations he does discuss.

25 **B. BGI's MILs**

26 **1. Exclude any argument or suggestion that BGI poses a risk to national**  
 27 **security or invasion of personal information by offering sequencing**  
 28 **products or diagnostic testing such as COVID testing**

**GRANTED** as to arguments or suggestions that BGI poses a risk to national security or  
 invasion of personal information by offering sequencing products or diagnostic testing. **DENIED**

1 as to testimony about the Section 301 investigation. If BGI opens the door concerning  
2 COVID-19, Illumina may offer evidence in rebuttal.

3 **2. Exclude any arguments maligning of Chinese companies and/or**  
4 **Chinese business practices based on location and corporate ownership**  
5 **in China, nationality, stereotype, and/or affiliation with the Chinese**  
6 **government**

7 **GRANTED** as to any arguments maligning Chinese companies and/or Chinese business  
8 practices. **DENIED** as to factual references (e.g., BGI's location, corporate ownership, resources  
9 in China, relationship (if any) with the Chinese government).

10 **3. Exclude video from the translated deposition of Dr. Jian Wang**

11 **DENIED.** Parties shall meet and confer to edit the video to address BGI's concerns.

12 **4. Exclude evidence or argument concerning the preliminary injunction**

13 **GRANTED.** Evidence of a preliminary injunction, including the fact of the preliminary  
14 injunction, is highly prejudicial and the probative value does not outweigh such prejudice. Parties  
15 shall stipulate to the fact that damages stopped in 2020. The parties may use any language to  
16 explain this fact so long as the stipulation does not reference the preliminary injunction. If the  
17 parties are unable to reach an agreement, they may each submit competing instructions by  
18 November 5, 2021 on CM/ECF and I will decide what the language should be. If Dr. Kearl  
19 intends to mention Illumina's filing of the preliminary injunction motion as part of his damages  
20 opinion, the parties' competing instructions should include suggestions as to a fair response by  
21 Illumina.

22 **5. Exclude evidence or argument concerning the injunction against**  
23 **Qiagen or any IPRs**

24 **DENIED.** The Qiagen injunction and IPR proceedings are relevant to willfulness and  
25 obviousness. Any potential confusion to the jury from the inclusion of IPR decisions can be  
26 addressed by appropriate jury instructions. In order for BGI to prepare its fact witnesses for  
27 potential cross-examination questions about the injunction and IPRs, the parties shall meet and  
28 confer to agree on what BGI's fact witnesses can review from confidential documents.



1                   **6. Exclude evidence or argument concerning the results of foreign**  
2                   **litigations between the parties**

3                   **GRANTED.** But if BGI references the fact of a foreign litigation between itself and  
4                   Illumina, then Illumina may introduce the outcome of the litigation.

5                   **7. Exclude evidence or argument concerning alleged irreparable harm**  
6                   **and evidence or argument that is solely related to issues relevant to the**  
7                   **request for injunction**

8                   **GRANTED** as to evidence that is solely related to Illumina’s request for permanent  
9                   injunction. **DENIED** as to evidence related to damages.

10                   **8. Exclude testimony from evidence, arguments, or cross-examination of**  
11                   **other witnesses regarding testimony of BGI’s experts from the**  
12                   **preliminary injunction, David Smith and John Sutherland**

13                   **DENIED.** Smith’s testimony that is related to facts and not his opinions shall not be  
14                   excluded. In addition, Sutherland and Smith’s testimonies, on which other expert witnesses rely,  
15                   shall not be excluded.

16                   **9. Exclude any reference to an expert’s other affiliations with a party or**  
17                   **counsel on matters not related to the instant action**

18                   **DENIED.** References to an expert’s other affiliations with a party or counsel are relevant  
19                   to the issue of the expert’s bias.

20                   **10. Exclude evidence or argument concerning revenues from sales outside**  
21                   **the U.S. or alleged benefits therefrom**

22                   **DENIED.** BGI’s foreign sales are relevant to validity as evidence of commercial success  
23                   and as a factor of a hypothetical negotiation. Illumina states that it will not present damages  
24                   calculations that include foreign sales or services or the “other benefits” discussed in Prowse’s  
25                   report. BGI can cross-examine Illumina if its foreign sales are an issue and it can request a  
26                   limiting instruction to the jury.

27                   **11. Exclude evidence or argument regarding conduct during discovery**

28                   **GRANTED.**

**12. Exclude evidence or references to non-waived, privileged subject**  
                    **matter and questioning reasonably anticipated to elicit testimony on**  
                    **privileged subject matter**

**DEFER ruling.** Parties cannot provoke privileged assertions. Because context is  
necessary to determine relevance, I will defer ruling on this motion.

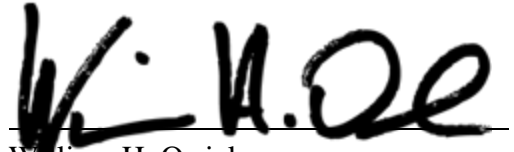
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**13. Exclude any suggestion or argument concerning the lack of an opinion of counsel regarding infringement and/or validity and suggestion or argument that lack of an opinion of counsel has any significance regarding willfulness**

**GRANTED.** If BGI relies on legal advice to argue lack of infringement, validity, or willfulness, Illumina may address BGI's withholding of such legal advice.

**IT IS SO ORDERED.**

Dated: October 27, 2021

  
\_\_\_\_\_  
William H. Orrick  
United States District Judge

United States District Court  
Northern District of California