IN THE UNITED STATES DISTRICT COURT

FOR THE WESTERN DISTRICT OF WISCONSIN

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PROMEGA CORPORATION,

OPINION AND ORDER

Plaintiff,

and

10-cv-281-bbc

MAX-PLANCK-GESELLSCHAFT zur
FORDERUNG der WISSENSCHAFTEN E.V.,

Involuntary Plaintiff,

v.

LIFE TECHNOLOGIES CORPORATION,
INVITROGEN IP HOLDINGS, INC. and
APPLIED BIOSYSTEMS, LLC,

Defendants.

- -

Plaintiff Promega Corporation is suing defendants Life Technologies Corporation, Applied Biosystems, LLC and Invitrogen IP Holdings, Inc. for infringement of U.S. Patents Nos. 5,843,660, 6,221,598, 6,479,235, 7,008,771 and Re 37,984. (Both sides treat the three defendants as one entity for the purpose of the motions for summary judgment, so I will do the same.) Plaintiff owns the first four patents and is the exclusive licensee of

involuntary plaintiff Max Planck with respect to the fifth. The patents relate to "multiplex amplification of short tandem repeat loci," which are regions on a DNA strand that contain repeating nucleotide sequences. Because the number of repeats of particular sequences can vary greatly from person to person, these differences can be used to compare different DNA samples for possible matches. To facilitate the process, the loci are copied, or "amplified." "Multiplex" amplification means that multiple loci are copied simultaneously to make the process more efficient.

The asserted patents include both apparatus and method claims. Plaintiff contends that kits made and sold by defendants directly infringe the apparatus claims and that defendants induce infringement of the method claims. The asserted apparatus claims are claims 18-19 and 21-23 of the '235 patent, claims 10, 23-24, 27 and 33 of the '598 patent; claims 25 and 27-31 of the '660 patent, claim 5 of the '771 patent and claim 42 of the '984 patent. The asserted method claims are claims 1-4, 6-13 and 15-17 of the '235 patent, claims 1-2, 4-5, 7-9, 12, 15, 19, 21-22, 28 and 31-32 of the '598 patent; claims 2-5, 16-17, 19-21 and 23-24 of the '660 patent and claims 15-16, 18, 23, 25, 27-28 and 41 of the '984 patent.

Plaintiff has filed a motion for summary judgment with respect to infringement of all five patents as well as on defendants' invalidity defenses and counterclaims for anticipation, lack of enablement and obviousness. Defendants have filed a motion for partial summary

judgment for noninfringement, lack of enablement and obviousness with respect to all of the patents except the '984 patent.

I am granting defendants' motion with respect to noninfringement of claims 25 and 27-31 of the '660 patent because I conclude that those claims are limited to products that use no loci other than those listed in the claims and the parties agree that none of the accused products are limited to just those loci. Because the remaining asserted claims are open-ended (they do not exclude unrecited loci) and the parties identify no other potential differences between the accused products, I am granting plaintiff's motion for summary judgment with respect to direct infringement of all other claims that disclose a kit. I disagree with defendants that their sale of the kits is covered by a license agreement with plaintiff and that plaintiff lacks standing to sue under the '984 patent.

With respect to the method claims, plaintiff is not seeking summary judgment for direct infringement, only for inducement under 35 U.S.C. § 271(b). I am denying plaintiff's motion for summary judgment with respect to inducement and willfulness because plaintiff failed to develop arguments on these issues. Because defendants' motion for summary judgment did not include these issues, they will have to proceed to trial.

With respect to invalidity, I conclude that plaintiff is entitled to summary judgment on defendants' affirmative defenses and counterclaims of anticipation, obviousness and lack of enablement. The enablement defense is contingent on an incorrect view that the

patentees were required to enable unrecited elements and defendants have failed to adduce any evidence that at the time the patent applications were filed, it would have been obvious to a person of ordinary skill in the art that the combinations of loci disclosed in the asserted patents could coamplify successfully.

Defendants do not contend in their summary judgment briefs that any of the claims in the asserted patents are anticipated, but they say that the court should not rule on this issue because they never raised it. I disagree. Although it is true that defendants did not include an opinion on anticipation in their expert report, in their answer they included an affirmative defense and a counterclaim that "the '660, '598, '235, and '771 patents are invalid for failure to comply with one or more of the requirements of the United States patent laws, including at least 35 U.S.C. sections 102, 103 and/or 112." Ans., dkt. #150, at 35. Anticipation is one of the defenses under 35 U.S.C. § 102. Defendants did not explicitly identify anticipation as a defense or a counterclaim, but they did not identify any other particular invalidity defenses either. Thus, if defendants properly raised any invalidity defenses in their answer and counterclaim, anticipation was among them. Accordingly, I conclude that there is an actual controversy regarding that issue and that plaintiff is entitled to summary judgment because defendants failed to show that a genuine issue of material fact exists.

Two other motions are before the court: (1) plaintiff's motion to "strike" defendants'

brief in support of their motion for partial summary judgment, or, in the alternative, to disregard any facts not included in defendants' proposed findings of fact, dkt. #262; and (2) plaintiff's motion for leave to file a reply brief in support of the motion to strike. Dkt. #293. With respect to the motion to strike, I will grant plaintiff's alternative request because the court's procedures are clear that "[a]ll facts necessary to sustain a party's position on a motion for summary judgment must be explicitly proposed as findings of fact." Helpful Tips for Filing a Summary Judgment Motion, Tip #1, dkt. #69, at 11. See also Procedure to Be Followed on Motions for Summary Judgment, I.B.4, dkt, #69, at 14 ("The court will not consider facts contained only in a brief."). I have not considered facts submitted by either side unless they were included in its proposed findings of fact. Plaintiff's motion to file a reply brief will be denied as unnecessary.

BACKGROUND

Certain locations or "loci" on chromosomes vary from individual to individual. These are called polymorphic loci and are useful as identifiers. However, no one locus will positively identify an individual to a statistically significant degree because no one locus is unique to each individual within any given population.

Short tandem repeats (STRs) are loci found within genomic DNA that have a number of short repetitive nucleotide sequences. The DNA sequences at a particular STR locus

within a given population will exhibit a variable number of these repeat sequences. It is this variation in the number of repeats at a particular locus that is responsible for the polymorphisms that permit scientists to genetically distinguish one individual from another.

Polymerase chain reaction is one method of amplifying loci. There are several steps in the process. First, the two strands of genomic DNA are heated and then separated to form "single stranded" DNA. Second, a pair of "primers" is introduced and allowed to pair with the single stranded DNA. This pairing occurs in accordance with the nucleotide pairing rules, that is, at a point on the single stranded DNA where the primer sequence is complementary to the genomic nucleotide sequence.

Amplifying the alleles present at a single locus is commonly referred to as a "monoplex" reaction. Amplifying multiple STR loci simultaneously is a "multiplex" reaction. To minimize labor, materials and analysis time, it is desirable to analyze multiple loci and samples simultaneously. One approach for reaching this goal involves amplification of multiple loci simultaneously in a single reaction.

The amplified alleles from one DNA sample can be compared to the amplified alleles of a second DNA sample by, for example, running the two samples side-by-side on the gel. One can then determine whether the two samples came from the same individual. Additionally, a "size marker" or "allelic ladder" is often run concurrently with the sample in another lane of the gel. By comparing the alleles amplified in the DNA sample to the allelic

ladder one can determine precisely which alleles appear in the DNA sample.

Defendants manufacture, offer for sale and sell AmpFlSTR Amplification Kits. These kits provide components for carrying out simultaneous amplification of multiple short tandem repeat loci from one or more DNA samples. The kits are used for chimerism in the context of bone marrow transplant monitoring, cell line authentication, genotyping hydatidiform moles, cancer analysis, determinations of fetal sex and anthropological research, among other things.

Chimerism occurs following bone marrow transplantation when the recipient produces her own blood cells as well as donor blood cells. The kits are used to compare the amount of amplified STR alleles from the donor and host and then to determine the proportion of blood cells contributed by each source. Repetitive testing over time indicates whether the proportion of blood cells from the donor and host is changing, which has treatment and prognostic value.

In genotyping hydatidiform moles, kits are used to classify moles in a woman's uterus during pregnancy to assess whether the woman is at risk for particular diseases. In cell line authentication, kits are used to determine whether new cell lines are unique. In cancer analysis, the kits are used to analyze genetic instability in cancers by detecting allelic imbalance.

OPINION

A. Claim Construction

The parties' arguments on questions of infringement and invalidity rely in part on their understanding of the phrase "a set of . . . loci," which appears in all of the asserted claims in the '235, '298, '660, and '771 patents. In particular, each claim includes the phrase "a set of . . . loci" followed by a list of particular loci. For example, claim 16 of the '660 patent discloses:

> A method of simultaneously determining the alleles present in three short tandem repeat loci from one or more DNA samples, comprising:
>
> (a) obtaining at least one DNA sample to be analyzed,
>
> (b) selecting a set of three short tandem repeat loci of the DNA sample to be analyzed which can be amplified together, wherein the set of three loci is selected from the group of sets of loci consisting of:
>
> D3S1539, D19S253, D13S317;
> D10S1239, D9S930, D20S481;
> D10S1239, D4S2368, D20S481;
> D10S1239, D9S930, D4S2368;
> D16S539, D7S820, D13S317; and
> D10S1239, D9S930, D13S317.
>
> (c) co-amplifying the three loci in the set in a multiplex amplification reaction, wherein the product of the reaction is a mixture of amplified alleles from each of the co-amplified loci in the set; and
>
> (d) evaluating the amplified alleles in the mixture to determine the alleles present at each of the loci analyzed in the set within the DNA sample.

The question of claim construction presented by the parties is whether the set may include loci in addition to those that are listed in the claim, that is, whether the set is open or closed. Plaintiff says all of the asserted claims are open-ended; defendants say they are all closed.

The parties raised this issue in their claim construction briefs, but I declined to resolve it because both sides supported their arguments with text of particular claims without accounting for the textual differences among the claims. Accordingly, I directed the parties to reassert their arguments at summary judgment if they believed a construction was needed to resolve a dispute of infringement or invalidity. "In the meantime, the parties should consider how they wish to frame their arguments. If they believe that 'a set of . . . loci' has an identical meaning everywhere it appears in every asserted claim in every asserted patent, then they should be prepared to explain why textual differences in the claims may be disregarded. They should not use the language of a particular claim to support a construction they wish to be applied across the board." Dkt. #190, at 4.

Defendants largely disregarded these instructions in their summary judgment materials. They advance arguments from the prosecution history with the assumption that a statement from the history of one patent applies equally to another and they cherry pick language from particular claims while ignoring other claims that have different texts.

I will consider defendants' arguments about the prosecution history first and I will assume that any statement in the prosecution history applies to all of the asserted patents.

Defendants argue that the applicants disclaimed the inclusion of any loci in the reaction not expressly listed in the claims. In support, defendants cite various statements from the applicants that the prior art did not include "these combinations" of loci and a statement from the examiner of the '598 patent that the prior art "does not teach the specific combinations provided in the claims." Dfts.' Br., dkt. #245, at 12-13. (Defendants did not include proposed findings of fact about these aspects of the prosecution history, but I will consider them because doing so will not make any difference to the outcome of the motion.)

If the applicants had been distinguishing prior art that included one of the listed sets of loci *and* one or more additional loci, defendants would have a stronger argument of disclaimer. Defendants' argument fails because the applicants were distinguishing prior art that was *missing* some of the loci in the listed combinations. For example, the applicants noted that Oldroyd included two of the loci listed in claim 1 of '660 patent, but none of the other loci. Dkt. #240-12. Thus, a statement that "these combinations" were not in the prior art does not disclaim an invention that includes those combinations and additional loci.

The cases defendants cite provide no support for their argument. In Seachange International, Inc. v. C-COR, Inc., 413 F.3d 1361, 1369 (Fed. Cir. 2005), the question was whether the applicants had defined the term "network for data communications" to mean "point-to-point networks" during the prosecution history. In concluding that they had, the

court of appeals relied on statements in which the applicants overcame an examiner's objection by explaining that the prior art did not include a point-to-point network. In Elkay Manufacturing Co. v. Ebco Manufacturing Co., 192 F.3d 973, 977 (Fed. Cir. 1999), the question was whether the term "an upstanding feed tube" meant one tube or could mean more than one. The court limited the term to one tube because, during the prosecution history, the applicants had distinguished prior art on the ground that it used multiple tubes.

Neither of these cases raised the question whether the claimed invention is limited to recited items. Both involved applicants who needed to narrowly define their invention during prosecution in order to overcome an anticipation defense. Because the applicants in this case did not define their invention to exclude additional loci, SeaChange and Elkay are not on point.

Defendants' other "universal" argument is similar. They rely on Smith v. Snow, 294 U.S. 1, 14 (1935), Phillips v. AWH Corp., 415 F.3d 1303, 1321 (Fed. Cir. 2005), Acumed, LLC v. Stryker Corp., 483 F.3d 800, 815 (Fed. Cir. 2007), and In re Gray, 53 F.2d 520, 522 (CCPA 1931), for the proposition that claims should not be construed to cover more than what was actually invented. Because the applicants did not invent any combinations of loci other than those listed in the claims, defendants say it would violate this principle to allow the claims to cover additional loci.

Again, none of the cited cases raise the question whether a claim must be limited to

recited elements. It is well-established that claims are not so limited; that is the whole point of using terms such as "comprising" or "including." Crystal Semiconductor Corp. v. TriTech Microelectronics International, Inc., 246 F.3d 1336, 1348 (Fed Cir. 2001) ("[T]he transition 'comprising' creates a presumption that the recited elements are only a part of the device, that the claim does not exclude additional, unrecited elements."); AFG Industries, Inc. v. Cardinal IG Co., Inc., 239 F.3d 1239, 1244 (Fed. Cir. 2001) ("When a claim uses an 'open' transition phrase, its scope may cover devices that employ additional, unrecited elements."); Stiftung v. Renishaw PLC , 945 F.2d 1173, 1178 (Fed. Cir. 1991) (a claim that "uses the term 'comprising,' is an 'open' claim which will read on devices which add additional elements"). If I were to accept defendants' argument, it would mean that a defendant could avoid infringement simply by adding more elements to a device or method. That is not the law, even when the additional elements are an improvement to the claimed invention. Free Motion Fitness, Inc. v. Cybex International, Inc., 423 F.3d 1343, 1347 (Fed. Cir. 2005) ("The addition of unclaimed elements does not typically defeat infringement when a patent uses an open transitional phrase such as 'comprising.'"); Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1365 (Fed. Cir. 2004) ("Making improvements on a patented invention by adding features to a claimed device beyond those recited in the patent does not avoid infringement."); A.B. Dick Co. v. Burroughs Corp., 713 F.2d 700, 703 (Fed. Cir. 1983) ("It is fundamental that one cannot

avoid infringement merely by adding elements if each element recited in the claims is found in the accused device."). See also Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1374 (Fed. Cir. 2005) (claim disclosing razor with three blades could read on razor with four blades); Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 499 (Fed. Cir. 1997) ("[T]he district court improperly limited the transitional phrase 'comprising,' which allows additional elements to be present as long as the named elements are present, to exclude additional DNA between the alpha-factor processing sequences and the human IGF-I sequence.").

Turning to the language of the asserted claims, I will begin with the '660 patent because I construed some of those claims in a previous case. Promega Corporation v. Applera Corporation, No. 01-C-244-C (W.D. Wis. June 10, 2002), dkt. #64. The question in case no. 01-C-244-C was the same as in this case, whether "a set of . . . loci" in the asserted claims was opened or closed. In this case, plaintiff is asserting claims 2-5, 16-17, 19-21, 23-25 and 27-31; in case no. 01-C-244-C, plaintiff was asserting claims 1-5 and 16. Although claim 1 is not asserted in this case, it is relevant because claims 2-5 depend from it. Claim 1 discloses:

> A method of simultaneously determining the alleles present in at least four short tandem repeat loci from one or more DNA samples, comprising:
>
> (a) obtaining at least one DNA sample to be analyzed,
>
> (b) selecting a set of at least four short tandem repeat loci of the DNA sample to be analyzed which can be amplified together, wherein the at least four loci

in the set are selected from the group of loci consisting of:

D3S1539, D4S2368, D5S818, D7S820, D9S930, D10S1239, D13S317, D14S118, D14S548, D14S562, D16S490, D16S539, D16S753, D17S1298, D17S1299, D19S253, D20S481, D22S683, HUMCSF1PO, HUMTPOX, HUMTH01, HUMF13A01, HUMBFXIII, HUMLIPOL, HUMvWFA31;

(c) co-amplifying the loci in the set in a multiplex amplification reaction, wherein the product of the reaction is a mixture of amplified alleles from each of the co-amplified loci in the set; and

(d) evaluating the amplified alleles in the mixture to determine the alleles present at each of the loci analyzed in the set within the DNA sample.

A review of the 2002 opinion reveals that there were *two* disputes about the scope of the claims, both of which seem to be relevant to this case. The first was the one focused on by the parties in this case, that is, whether the list of loci in step (b) is exclusive or may include other unnamed loci. The second was whether step (c) may include loci not listed in step (b), regardless whether the list in step (b) is closed. Both sides raise arguments about both issues, though neither acknowledges that the issues are distinct. In any event, the parties seem to agree that the accused products infringe the claims of the '660 patent if plaintiff prevails on either issue.

In case no. 01-C-244-C, I agreed initially with the defendants that lists of loci identified in claims 1-5 and 16 were closed and that the loci in step (c) were limited to the list in step (b). Promega Corporation v. Applera Corporation, No. 01-C-244-C (W.D. Wis. Jan. 3, 2002), dkt. #40. However, upon reconsideration, I adopted the following

construction: "Claims 1 through 5 and 16 of the '660 Patent require the presence of at least one of the sets identified in the Markush groups stated in limitation (b) of those claims but do not exclude the presence of other STR loci in the multiplex reaction required by limitation (c) of those claims." Dkt. #64, at 10. In reaching that conclusion, I discussed several factors.

First, I concluded that it was important not to conflate the loci in "the set" in step (b) with the loci in the "reaction" in step (c). That is, even if "the set" in step (b) was limited to the recited loci, it did not follow that the loci in the "multiplex amplification reaction" in step (c) was limited to those listed in step (b). I concluded that the language of step (c) did not exclude the presence of other loci. (Plaintiff buttresses that conclusion in this case by pointing out that step (c) discloses a "mixture," which generally permits ingredients not listed in the claim. Mars, Inc. v. H.J. Heinz Co., 377 F.3d 1369 (Fed. Cir. 2004).)

Second, I cited the rule that "[o]ne who does not infringe an independent claim cannot infringe a claim dependent on (and thus containing all the limitations of) that claim." Wahpeton Canvas Co., Inc. v. Frontier, Inc., 870 F.2d 1546, 1552 (Fed. Cir. 1989). Under the defendants' view, this rule would be broken because it would be possible for an accused product to infringe a dependent claim without infringing the independent claim. For example, claim 3 contains the following set of loci: "D16S539, D7S820, D13S317, D5S818, HUMFI3A01, HUMFESFPS." Although the first five of these loci are listed in claim 1,

HUMFESFPS is not. Thus, if the set of loci in claim 1 is closed, a product that included the six loci in claim 3 could infringe claim 3, but not claim 1.

Third, I rejected the defendants' argument that the patentees disclaimed an open set when they amended the phrase "at least four of the loci in the set" to "the at least four loci in the set." Although I acknowledged the possibility that inclusion of "the" could be read "to require that all the loci in a set, whether four or more, be selected from the Markush group in step (b)," I also found credible plaintiff's argument that "the amendment was not substantive, but was made instead to conform the claim to standard patent claim drafting procedure, which requires that an element of a claim be preceded by a definite article, such as 'the,' each time it is referred to after its initial appearance in a claim." Dkt. #64, at 8-9. Because neither the patentees nor the examiner made a clear statement regarding the amendment's significance, I declined to narrow the scope of the claim.

Finally, I cited a statement by the patentees when they deleted the HUMFESFPS loci from the list in claim 1: "the amendments to claim 1 do not change the fact that the claimed method encompasses the coamplification and evaluation of sets of short tandem repeat loci which include the deleted locus, provided at least four of the loci in the set . . . are selected from the remaining group of loci listed in claim 1." Because there was no clear evidence that the patentees ever disavowed this broad interpretation or that the examiner disagreed with it, the statement supported plaintiff's view that the set was open.

As I noted in the claim construction order in this case, the law suggests that I am not bound by the conclusion in the 2002 opinion because the case settled before judgment. Talmage v. Harris, 486 F.3d 968, 974 (7th Cir. 2007) ("Normally, when a case is resolved by settlement or stipulation, courts will find that the 'valid final judgment' requirement of issue preclusion has not been satisfied."). However, defendants do not directly address the 2002 opinion or criticize its reasoning. Although they raise arguments that would conflict with the earlier case, those arguments are undeveloped and unpersuasive. Accordingly, I decline to depart from my previous conclusion.

This resolves the claim construction dispute with respect to claims 2-5 and 16 of the '660 patent. Because asserted claims 17, 19-21 and 23-24 all depend from claim 16 and do not include any additional "set of . . . loci" limitations, I need not consider those claims separately.

Claims 1-2, 4-5 and 7-9 of the '598 patent have a structure similar to that of claims 2-5 and 16 of the '660 patent. Because defendants do not point to any more restrictive language in claims 1-2, 4-5 and 7-9 of the '598 patent, I conclude that those claims may include unrecited loci as well.

Asserted claim 25 in the '660 patent is another matter. That claim discloses:

> A kit for simultaneously analyzing short tandem repeat sequences in at least three loci, comprising a container which has oligonucleotide primers for co-amplifying a set of at least three short tandem repeat loci, wherein the set

of loci are selected from the sets of loci consisting of:

D3S1539, D19S253, D13S317;
D10S1239, D9S930, D20S481;
D10S1239, D4S2368, D20S481;
D10S1239, D9S930, D4S2368;
D16S539, D7S820, D13S317;
D10S1239, D9S930, D13S317;
D3S1539, D7S820, D13S317, D5S818;
D17S1298, D7S820, D13S317, D5S818;
D20S481, D7S820, D13S317, D5S818;
D9S930, D7S820, D13S317, D5S818;
D10S1239, D7S820, D13S317, D5S818;
D14S118, D7S820, D13S317, D5S818;
D14S562, D7S820, D13S317, D5S818;
D14S548, D7S820, D13S317, D5S818;
D16S490, D7S820, D13S317, D5S818;
D17S1299, D7S820, D13S317, D5S818;
D16S539, D7S820, D13S317, D5S818;
D22S683, D7S820, D13S317, D5S818;
D16S753, D7S820, D13S317, D5S818;
D3S1539, D19S253, D13S317, D20S481;
D3S1539, D19S253, D4S2368, D20S481;
D10S1239, D9S930, D4S2368, D20S481;
D16S539, D7S820, D13S317, HUMvWFA31;
D16S539, D7S820, D13S317, D5S818, HUMCSF1PO, HUMTPOX;
D16S539, D7S820, D13S317, D5S818, HUMF13A01, HUMFESFPS;
D16S539, D7S820, D13S317, D5S818, HUMCSF1PO, HUMTPOX, HUMTH01;
D16S539, D7S820, D13S317, D5S818, HUMF13A01, HUMFESFPS, HUMBFXIII;
D16S539, D7S820, D13S317, D5S818, HUMCSF1PO, HUMTPOX, HUMTH01, HUMvWFA31; and
D16S539, D7S820, D13S317, D5S818, HUMF13A01, HUMFESFPS, HUMBFXIII, HUMLIPOL.

Both sides recognize that the phrase "consisting of" signals a closed list. "In simple

terms, a drafter uses the phrase 'consisting of' to mean 'I claim what follows and nothing else.'" Vehicular Technologies Corp. v. Titan Wheel Intern., Inc., 212 F.3d 1377, 1383 (Fed. Cir. 2000). Extending that logic to this claim would mean that the set must include loci from the list and no other loci. Unlike claims 2-5 and 16, claim 25 does not include a counterpart to step (c) that would allow unrecited loci to be included in a mixture. In addition, no claims depend from claim 25 that recite loci not included in claim 25.

Plaintiff asks the court not to construe claim 25 as closed because the claim includes the term "comprising," which it says supports a construction that additional, unrecited loci may be included. Although plaintiff is correct that the term "comprising" is open-ended, as defendants point out, the term " '[c]omprising' is not a weasel word with which to abrogate claim limitations." Spectrum International Inc. v. Sterilite Corp., 164 F.3d 1372, 1380 (Fed. Cir. 1998). The context of the term is important. In claim 25, "'[c]omprising' appears at the beginning of the claim . . . The presumption raised by the term 'comprising' does not reach into each of the [elements] to render every word and phrase therein open-ended." Dippin' Dots, Inc. v. Mosey. 476 F.3d 1337, 1343 (Fed. Cir. 2007). In other words, the term "comprising" in claim 25 suggests that the kit may include elements other than "a container which has oligonucleotide primers for co-amplifying a set of at least three short tandem repeat loci," but it does not suggest that the set may include loci outside the list.

The importance of context is shown by comparison to asserted claim 10 of the '598

patent:

> A kit for simultaneously analyzing short tandem repeat sequences in at least three loci, comprising:
>
> a single container containing oligonucleotide primers for each locus in a set of at least three short tandem repeat loci, wherein the at least three short tandem repeat loci in the set comprises at least three loci selected from the group consisting of: [a listing of 20 sets of three loci].

In this claim, the applicants wrote that the set "comprises at least three loci selected from the" recited group, making it clear that the set may include other loci outside the group. Claim 25 of the '660 patent is missing similar language.

Alternatively, plaintiff relies on the phrase "at least three loci" in claim 25: "the fact that the sets themselves (from which to choose) are bigger than three loci makes it expressly clear additional loci can be selected." Plt.'s Br., dkt. #228, at 11. This argument makes no sense. If the listed sets were limited to two or three loci, then the phrase "at least three loci" might support an argument that additional loci must be present as well. However, because some of the listed sets have three loci and some have more than three, there is no reason to interpret "at least three loci" as anything other than an acknowledgment that some of the listed sets have more than three loci in them.

Accordingly, I conclude that claim 25 of the '660 patent is limited to the listed loci. Because asserted claims 27-31 depend from claim 25, this conclusion extends to those claims

as well.

The language of the remaining asserted independent claims makes it clear that they are not limited to the recited loci because they all use the word "comprising" when listing the loci. '598 pat., claim 12 ("selecting a set of short tandem repeat loci of the DNA sample to be analyzed which can be co-amplified, comprising . . ."); id. at claim 23 ("a set of short tandem repeat loci which can be co-amplified, comprising . . ."); id. at claim 28 ("a set of short tandem repeat loci of the DNA sample to be analyzed which can be co-amplified, comprising . . . "); id. at claim 33 ("a set of short tandem repeat loci which can be co-amplified, comprising . . . "); '235 pat., claim 1 ("selecting a set of loci of the DNA sample, comprising . . ."); id. at claim 13 ("selecting a set of loci of the DNA sample, comprising . . ."); id. at claim 18 ("the loci comprise . . ."); '771 pat., claim 5 ("a set of loci from one or more DNA samples, comprising . . ."). The remaining asserted claims of these four patents are dependent claims that do not include more limiting language that is relevant to this issue. Accordingly, I conclude that all of the asserted claims allow for unrecited loci, with the exception of claims 25 and 27-31 of the '660 patent.

B. Infringement

Plaintiff contends that summary judgment is appropriate for direct infringement with respect to those asserted claims that disclose a kit and inducement of infringement with

respect to the method claims. Defendants do not deny in their briefs that the accused products include all of the elements of the '984 patent. With respect to the '660, '598, '235 and '771 patents, the only element defendants say is missing is "a set of . . . loci" on the ground that the accused products include loci not recited in the claims. In the previous section, I agreed with this argument with respect to claims 25 and 27-31 of the '660 patent, but I disagreed with respect to every other asserted claim. Accordingly, I will grant defendants' motion for summary judgment with respect claims 25 and 27-31 of the '660 patent, but I cannot grant defendants' motion on this ground with respect to the other asserted claims.

Defendants raise two more grounds for granting summary judgment with respect to direct infringement of the other asserted claims. First, defendants argue that any allegedly infringing acts under the '235, '598, '660 and '771 patents fall within the scope of a 1996 licensing agreement. Second, defendants argue that plaintiff does not have the right to sue under the '984 patent.

Finally, with respect to inducement, the question is whether plaintiff has proven inducement by defendants as a matter of law. Defendants have not moved for summary judgment on the question of inducement.

1. Direct infringement of the '235, '598, '660 and '771 patents: scope of 2006 cross license

The parties dispute whether several kinds of applications performed by the accused products sold by defendants fall within the scope of the license agreement: chimerism in the context of bone marrow transplant monitoring, cell line authentication, classifying molar specimens and determinations of fetal sex. The license extends to "any analysis, based on the measurement of the length of polynucleotide sequence containing a tandem repeat, of human genetic material for (a) use in, or preparation for, legal proceedings, or (b) analysis of biological specimens for the identification of individuals." Defendants argue that their kits fall within the scope of the license because they perform an "analysis of biological specimens for the identification of individuals."

Neither side cites much case law in favor of its position or even conducts a choice of law analysis. However, it is unnecessary to ask for supplemental briefing because it is clear from the plain language of the license and the undisputed facts that the kits in dispute do not perform an analysis "for the identification of individuals."

It is undisputed that the identity of the individual is either already known or irrelevant to the applications at issue. Plt.'s PFOF ¶ 135, dkt. #246; Dfts.' Resp. to Plt.'s PFOF ¶ 135, dkt. #257; Plt.'s PFOF ¶ 147, dkt. #246; Dfts.' Resp. to Plt.'s PFOF ¶ 147, dkt. #257; Plt.'s PFOF ¶ 150, dkt. #246; Dfts.' Resp. to Plt.'s PFOF ¶ 150, dkt. #257; Plt.'s PFOF ¶ 152, dkt. #246; Dfts.' Resp. to Plt.'s PFOF ¶ 152, dkt. #257. (Defendants dispute these proposed findings of fact on the ground that the applications involve a "human

identity application," but they do not dispute the fact that the identity of the individual is already known or irrelevant in each of them.) In particular, chimerism involves determining the relative *amount* present of two different types of DNA, Plt.'s PFOF ¶ 135; classifying molar specimens involves determining whether a mole is present and what type it is; Plt.'s PFOF ¶ 147; cell line authentication involves a determination whether two cell lines are unique, Plt.'s PFOF ¶ 149. Determination of fetal sex is self-explanatory.

Defendants do not dispute plaintiff's description of these applications, but they rely on the opinion of their expert for the proposition that the applications "determine the identity, or DNA fingerprint or genetic profile of a known individual." Booker Rpt., dkt. #291-1 at ¶ 17. That is not helpful. The expert's opinion suggests that the applications may be used for the identification of particular genetic characteristics, but it does not suggest that they are used "for the identification of *individuals*." Defendants do not provide any reason to give the word "individuals" anything other than its ordinary meaning.

To the extent the parties' subjective intent is relevant, the available evidence does not support defendants' view. For example, defendants' corporate representative, Daniel Hall, testified that defendants did not have a license from plaintiff for bone marrow transplant applications, which is evidence that defendants themselves do not believe that the license covers applications in which the identity of the donor is already known. Hall Dep., dkt. #233-48, at 53-54. Defendants do not even attempt to reconcile the representative's

position with their position in their summary judgment briefs that bone marrow transplant applications fall within the scope of the license. Accordingly, I am granting plaintiff's motion for summary judgment with respect to direct infringement of the asserted apparatus claims in the '235, '598, '660 and '771 patents, with the exception of claim 25 in the '660 patent and the claims that depend from claim 25.

2. Direct infringement of the '984 patent: scope of 1996 license

Defendants' argument on the '984 patent seems to be that plaintiff lacks standing to sue for infringement, though defendants do not say this explicitly. Rather, they say that plaintiff's rights under the '984 patent derive from a 1996 license that does not include the "research market" and that all of defendants' sales fall within that exception.

It is undisputed that plaintiff's rights under the '984 patent come from the 1996 license. Under that agreement, plaintiff has "an exclusive, worldwide license . . . for the HUMAN GENETIC IDENTITY and the HUMAN CLINICAL MARKET" except for "HUMAN LINKAGE ANALYSIS in the RESEARCH GENETICS FIELD OF USE." Dkt. #1-6. Defendants are simply wrong when they say that the agreement excludes the "research market" generally and they identify no reason to believe that any of their sales fall outside the human genetic identity market or the human clinical market.

Alternatively, defendants say that summary judgment is "premature" because the

parties are "in the midst of arbitration proceedings" that "could result in [plaintiff] losing all rights to the ['984] patent." Dfts.' Br., dkt. #253, at 31. Defendants provide no details and they cite no authority to support this view. I decline to stay a ruling on summary judgment because of an arbitration proceeding that may or may not affect plaintiff's rights in this case at some point in the future.

Although plaintiff asserted in its opening brief that the accused products meet all of the elements of the asserted claims in the '984 patent, defendants did not challenge this assertion in their opposition brief regarding noninfringement of this patent. Accordingly, I conclude that plaintiff is entitled to summary judgment with respect to infringement of the '984 patent.

3. Inducement of the method claims

Plaintiff said little about its claim that defendants may be held liable for inducing infringement under 35 U.S.C. § 271(b). It simply summarizes the standard and then lists a number of alleged actions by defendants. It did not develop any argument in support of a view that any of these actions constitute inducement or specify which actions induce infringement of which claims. Accordingly, plaintiff has not met its burden to show that it is entitled to judgment as a matter of law on its claims under § 271(b). Because defendants did not move for summary judgment on this issue, it will proceed to trial.

C. Enablement as to the '235, '598, '660 and '771 patents

Defendants' lack of enablement argument is the flip side of its noninfringement argument, that is, if the asserted claims are not limited to the recited loci, defendants say, they are invalid because the specification does not explain how to practice any methods or kits that use loci other those recited in the claims and undue experimentation would be required to determine what other loci could be added.

Defendants' argument is not persuasive. They cite the standard that "[t]o meet the enablement requirement, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation." Martek Biosciences Corp. v. Nutrinova, Inc., 579 F.3d 1363, 1378 (Fed. Cir. 2009), but they misread it to mean that the "claimed invention" includes unrecited elements. Employing open-ended language does not change the invention; it is simply a way to insure that others cannot avoid infringement by adding to the invention.

If defendants were correct, nearly every open-ended claim would be invalidated. The whole point of such claims is to prevent others from avoiding infringement by adding new elements that the inventors did not anticipate at the time of the invention. If, as the court of appeals has held, patentees are entitled to draft their claims to cover unrecited elements, then it would make no sense to require patentees to explain in the specification how to practice later improvements or additions. Cf. A.B. Dick Co., 713 F.2d at 703 ("[A] pencil

structurally infringing a patent claim would not become noninfringing when incorporated into a complex machine that limits or controls what the pencil can write. *Neither would infringement be negated simply because the patentee failed to contemplate use of the pencil in that environment*.") (Emphasis added).

Defendants cite two cases to support their argument, but neither of them addresses the question whether a patentee must enable unrecited elements. Rather, both of them involved an applicant that used a broad term in the claim and then failed to explain how to practice the invention with respect to particular aspects of that term. In re Vaeck, 947 F.2d 488, 495 (Fed. Cir. 1991) (affirming patent office's conclusion that claim was not enabled because applicant included "cyanobacteria" element without explaining in specification which cyanobacteria could be used); Sitrick v. Dreamworks, LLC, 516 F.3d 993, 1000 (Fed. Cir. 2008) (claim that disclosed invention related to both movies and video games not enabled because specification did not teach how to practice invention with movies). In the absence of case law requiring the patentee to enable his invention with respect to unrecited elements, I decline to impose such a requirement.

D. Obviousness as to the '235, '598, '660 and '771 patents

The parties agree that all elements of the claims were known in the prior art, with the exception of the particular combinations of loci to be co-amplified. Under 35 U.S.C. §

103(a), a claim is invalid "if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." Star Scientific, Inc. v. R.J. Reynolds Tobacco Co., 655 F.3d 1364, 1374 (Fed. Cir. 2011) (internal quotations and alterations omitted). Defendants have the burden to show by clear and convincing evidence that the asserted claims are obvious. Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1375 (Fed. Cir.1986).

Defendants advance two theories of obviousness. The first is the only theory included in defendants' expert report. It is contingent on defendants' argument that the claims are not enabled unless the specification shows how to practice the inventions using loci not recited in the claims:

> In the event that the Promega patents are actually deemed [to] teach and enable skilled artisans to multiplex sets of loci other than those listed in the claims, i.e., arbitrary sets of loci, then the claims would have been obvious in light of the prior art because the prior art would have already taught and enabled the same. Sun Decl., Ex. 8 (Struhl Invalidity Report) ¶ 45. In other words, if trial and error as disclosed in the Promega patents constitutes an enabling disclosure for multiplexing arbitrary sets of loci, then the prior art, which already taught trial and error, would also already have taught multiplexing of arbitrary sets of loci.

Dfts.' Br., dkt. #245, at 44. Because I have rejected defendants' enablement theory, this argument is moot.

Defendants' second theory is that the new loci combinations are not a "significant"

difference from the prior art because "the selection of the number of loci and the specific loci for use in a multiplex is merely an arbitrary choice." Id. at 45-56. This argument suffers from multiple problems. To begin with, it seems to be an afterthought because defendants' expert does not discuss it and defendants have submitted no proposed findings of fact about it. As I noted in the introduction, the court will not consider facts if they are included in a brief but not in the party's proposed findings of fact. Defendants cite United States v. Murphy Oil USA, Inc., 143 F. Supp. 2d 1054, 1064 (W.D. Wis. 2001), for the proposition that parties should not include legal conclusions in their proposed findings of fact. That is obviously correct, but unhelpful. Expert opinions and descriptions of the prior art are not legal conclusions. In any event, even if I considered the allegations in defendants' brief, defendants cite no evidence showing that it would be obvious to a person of ordinary skill in the art that combinations of loci in the claims can be successfully co-amplified. Because defendants bear the burden of persuasion with respect to invalidity, plaintiff's motion for summary judgment must be granted on the issue of obviousness.

E. Willful Infringement

Finally, plaintiff has moved for summary judgment on the question of willfulness, which it bears the burden to prove by clear and convincing evidence. nCube Corp. v. Seachange Intern., Inc., 436 F.3d 1317, 1319 (Fed. Cir. 2006). Plaintiff has not shown that

it is entitled to judgment as a matter of law on this issue. "'[W]illful' action is quintessentially a question of fact, for it depends on findings of culpable intent and deliberate or negligent wrongdoing." Biotec Biologische Naturverpackungen GmbH & Co. KG v. Biocorp, Inc., 249 F.3d 1341, 1356 (Fed. Cir. 2001). In fact, plaintiff cites no cases in which a court concluded that the plaintiff was entitled to summary judgment on willfulness. Perhaps more important, plaintiff's argument on willfulness is undeveloped, making up a page of their opening brief and consisting of little more than a few quotations from documents prepared by one employee of defendants. This is insufficient to show as a matter of law that plaintiff is entitled to a finding of willfulness.

ORDER

IT IS ORDERED that

1. The motion for partial summary judgment filed by defendants Life Technologies Corporation, Invitrogen IP Holdings, Inc. and Applied Biosystems, LLC, dkt. #234, is GRANTED with respect to plaintiff Promega Corporation's claim of infringement of claims 25 and 27-31 of U.S. Patent No. 5,843,660 and defendants' counterclaims for noninfringement of the same claims. Plaintiff's complaint is DISMISSED as to those claims. Defendants' motion is DENIED in all other respects.

2. Plaintiff's motion for summary judgment, dkt. #227, is GRANTED with respect

to the following claims of infringement:

- AmpFlSTR COfiler PCR Ampliflication Kit infringes claims 23 and 27 of U.S. Patent No.6,221,598 and claim 42 of U.S. Patent No. Re 37,984;
- AmpFlSTR Profiler PCR Amplification Kit infringes claims 10, 23-24, 27 and 33 of the '598 patent and claim 42 of the '984 patent;
- AmpFlSTR Identifiler PCR Amplification Kit infringes claims 10, 23-24 and 27 of the '598 patent, claims 18-19 and 21-23 of U.S. Patent No. 6,479,235, claim 5 of U.S. Patent No. 7,008,771 and claim 42 of the '984 patent;
- AmpFlSTR Profiler Plus PCR Amplification Kit infringes claim 42 of the '984 patent; and
- AmpFlSTR Yfiler PCR Amplification Kit infringes claim 42 of the '984 patent.

The motion is DENIED as to all other claims of infringement and inducing infringement.

2. Plaintiff's motion for summary judgment, dkt. #227, is GRANTED with respect to defendants' affirmative defenses and counterclaims that the '235, '598, '660 and '771 patents are invalid because they are anticipated, obvious or not enabled. Plaintiff's motion is DENIED with respect to its claim of willfulness.

3. Plaintiff's motion to disregard facts not included in the proposed findings of fact, dkt. #262, is GRANTED. Plaintiff's motion for leave to file a reply brief in support of that

motion, dkt. #293, is DENIED as unnecessary.

Entered this 29th day of November, 2011.

BY THE COURT:
/s/
BARBARA B. CRABB
District Judge