IN THE UNITED STATES DISTRICT COURT

FOR THE WESTERN DISTRICT OF WISCONSIN

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INNOGENETICS, N.V.,

OPINION AND ORDER

Plaintiff,

05-C-0575-C

v.

ABBOTT LABORATORIES,

Defendant.

- -

This is a civil suit alleging infringement of U.S. Patent No. 5,846,704, owned by plaintiff Innogenetics, N.V., and entitled "Process for Typing of HCV Isolates." Plaintiff alleges that defendant Abbott Laboratories infringes the '704 patent, either literally or under the doctrine of equivalents, by making, using, selling and offering to sell HCV genotyping assays. Defendant denies that its assays infringe plaintiff's '704 patent and has filed counterclaims in which it alleges that the '704 patent is invalid because it was anticipated by the prior art or was obvious in light of that art and that the patent is unenforceable because plaintiff engaged in inequitable conduct before the United States Patent Office. Jurisdiction is present. 28 U.S.C. §§ 1331 and 1338(a).

In response to defendant's counterclaim of inequitable conduct, plaintiff filed a

motion for summary judgment of no inequitable conduct, which was granted in an order entered on July 17, 2006. Now before the court is defendant's motion for summary judgment on plaintiff's claim of infringement and on its counterclaim of invalidity. I conclude that defendant's motion must be denied on both grounds because defendant has failed to show the absence of disputed material facts.

I. PRELIMINARY MOTIONS

Before I turn to the substance of the motion for summary judgment, it is necessary to resolve three disputes that have arisen in the course of briefing the motion for summary judgment. Plaintiff has moved to amend one of its responsive proposed findings of fact, no. 76, and to strike what it characterizes as defendant's new claim construction and new assertion of inherent anticipation. Defendant has moved for leave to supplement its proposed findings of fact in support of the motion.

A. Plaintiff's Motion to Amend Proposed Finding of Fact

Plaintiff seeks leave to add the words, "Abbott asserts that" before the statement in its proposed finding of fact no. 76 that "Abbott's products utilize Realtime PCR, which involves destroying any complex formed between a probe and nucleic acids of HCV; what is detected is a cleaved fluorophore, not a complex." Plaintiff contends, persuasively, that

the omission of the three words was inadvertent.

The infringement dispute can be narrowed to one disputed question: whether the language in the '704 patent, "detecting a complex" requires that the complex exist when detected or whether the language covers the detection of a fluorophore, which by its nature is observable only after the complex is destroyed. Plaintiff has devoted its infringement argument to the second contention, that is, that a complex can be detected in a number of ways, including observation of a fluorophore, because the fluorophore would not emit light were it not for the formation of a complex. Thus, plaintiff argues, the kind of detection involved in the realtime PCR assays that defendant sells infringes its patent even if the process allows the detection of the existence of a complex after it has been formed and then destroyed. After devoting many pages to this contention, it is improbable that plaintiff would have made an intentional concession of its main point in responding to defendant's proposed findings of fact.

In an effort to rebut plaintiff's claim of inadvertence, defendant argues that the unamended proposed finding of fact is nearly identical to others to which plaintiff did not object. The examples that defendant cites are proposed findings to the effect that when defendant's products are used, the complex at issue is destroyed and the researcher sees the products of the cleaved fluorophore. Plaintiff does not deny these facts; what it denies is defendant's assertion that "detection," as used in its patent, requires observation of the

complex itself and does not extend to observation of the products of the cleaved fluorophore.

It is obvious that plaintiff's omission was a slip of the pen (or processor). Correcting it will do nothing more than make the finding conform to the position that plaintiff has taken consistently throughout this case. Therefore, the motion to amend will be granted.

B. Plaintiff's Motion to Strike

Plaintiff's motion to strike is directed toward what it contends are defendant's new construction of "genotyping" HCV and its new assertion of inherent anticipation, both of which defendant raised for the first time in its reply brief. I will start with the allegedly new claim construction. During discovery, plaintiff defined the claim 1 limitation "method of genotyping" as

> A method that distinguishes among types and/or subtypes of hepatitis C virus (HCV) and classifies the HCV into a genotype or subtype.

In response, defendant proposed the following construction:

> A method for identifying a desired type or subtype of HCV present in biological tissue or fluid;

or, in the alternative,

> A method for identifying any and all types and subtypes of HCV that may be present in biological tissue or fluid.

In a non-infringement report, dkt. #39, at 2, defendant's expert, Dr. Bruce Patterson, expressed the opinion that "this first element of claim 1 means 'a method for identifying a desired type or subtype of HCV present in biological tissue or fluid,' as [defendant] has proposed." In its reply brief, defendant argues that the only way to construe "genotyping" is as

> A specific and selective type of sequence detection that permits distinguishing HCV types and subtypes.

As plaintiff points out, a reply brief is not the place to raise a new issue, whether of claim construction or anything else. The reasons are obvious. Doing so deprives one's opponent of the opportunity to respond to the new issue and asks the court to aim at a moving target. This court follows the lead of the Court of Appeals for the Seventh Circuit, which holds that arguments or facts raised for the first time in a reply brief are waived. Multi-Ad Services, Inc. v. N.L.R.B., 255 F.3d 363, 370 (7th Cir. 2001); Michaels v. Mr. Heater, Inc., 411 F. Supp. 2d 992, 995-96 (W.D. Wis. 2006). Moreover, under Fed. R. Civ. P. 26(e), defendant had the obligation to advise plaintiff "seasonably" of a change in its answers to interrogatories. "Seasonably" does not mean in a reply brief. I will not consider defendant's newly proposed construction of "method of genotyping" in deciding defendant's motion for summary judgment.

The same holding applies to defendant's argument in its reply brief that the Cha PCT Application anticipated plaintiff's invention inherently. Defendant says this is not a new

argument so much as a fleshing out of the anticipation arguments it made in its initial supporting brief. This is a mischaracterization of the record. Defendant never argued in its initial brief that the Cha PCT Application anticipated inherently; it argued only that the application anticipated plaintiff's invention. Inherency of anticipation is a separate and distinct argument that defendant waived when it failed to raise it in its opening brief.

C. Defendant's Motion to Supplement

Defendant wishes to supplement its proposed findings of fact by adding the following proposed findings:

> 174. Lieven J. Stuyver, Ph.D. is one of the named inventors of the method claimed by the '704 patent. [Citation omitted.]
>
> 175. Under the method claimed by the '704 patent, specific hybridization requires perfect matching between the nucleotides of a probe and the nucleotides of the HCV target sequence such that there is completely homologous probe/target base-pairing, with no mismatches. [Citation omitted.]

According to defendant, these proposed findings are submitted to support its proposed construction of the term "specifically hybridizing" in claim 1 of the '704 patent.

Plaintiff does not object to the supplementation of the proposed findings of fact but objects to the substance of the second proposed supplemental finding. Therefore, I will grant the motion to amend and address the new finding as it relates to infringement.

I turn then to the merits of defendant's motion. For the purpose of deciding it, I find

that the following facts are material and undisputed.

II. UNDISPUTED FACTS

Plaintiff Innogenetics, N.V. is a Belgian corporation with its principal place of business in Ghent, Belgium. Defendant Abbott Laboratories is an Illinois corporation with its principal place of business in Abbott Park, Illinois.

Plaintiff is the holder of U.S. Patent No. 5,846,704, entitled "Process for Typing of HCV Isolates," which issued to Geert Maertens, Lieven Stuyver, Rudi Rossau and Hugo van Heuverswyn. "HCV" refers to the hepatitis C virus, which causes hepatitis C, a liver disease that is blood-borne and transmitted through blood transfusions and in other ways. Within the class of the hepatitis C virus, there are numerous distinct "genotypes" and sub-types.

Like all organisms, viruses have a genetic code made up of nucleic acids. Unlike most organisms, however, many viruses have a genetic code of ribonucleic acid (RNA) and not deoxyribonucleic acid (DNA). Both RNA and DNA are made up of four nucleotides, the "building blocks" of the genetic code. In DNA, the nucleotides are adenine (A), cytosine (C), guanine (G) and thymine (T); in RNA, they are adenine, cytosin, guanine and uracil (U).

The genetic code of HCV is an RNA chain of approximately 9,500 nucleotides. The middle section of the HCV genome is referred to as the "coding region," because it is the section of the RNA that codes for the proteins that make up the structure of the virus and

allow it to replicate. At both the 5' and 3' ends of the coding region is a non-coding region (NCR), which is known also as an untranslated region (UTR). The different genotypes of HCV have genetic differences within the 5' UTR.

Probes are short synthetic strands of nucleic acid designed to bind, or "hybridize" to particular sequences of nucleic acids. Because nucleotides bind to their complements under the "base pairing rule," that is, A binds to T (or U, in RNA) and C binds to G, a researcher can use a known synthetic strand of nucleic acid to tell her the nucleic structure of an unknown strand.

A polymerase chain reaction (PCR) allows a scientist to make billions of copies of a selected nucleic acid sequence. PCR involves heating and cooling target nucleic acids in the presence of other compounds, including primers, nucleotides and a polymerase enzyme (typically, *taq* polymerase). Generally, the primers are used in pairs and are selected to flank the region of DNA or RNA that will be amplified. The nucleotides are a vast reservoir of loose A, C, G, and T that will be assembled into place by the polymerase enzyme to make the new nucleic acids. The reaction occurs in successive cycles, with each cycle involving three steps: (1) denaturation or "unzipping" a double-stranded nucleic acid molecule; (2) hybridization or "annealing" of short nucleic acids called primers to the denatured nucleic acids; and (3) extension of the hybridized primer complexes in the 5' to 3' direction to create two exact replicas of each original double-stranded nucleic acid molecule. Each cycle doubles

the amount of target nucleic acid present. Repeating the steps about 30-40 times will generate billions of copies of the target sequence in a matter of hours.

"Realtime PCR" was developed in the early 1990s. Researchers using this process add a class of reagents called "Taqman®" probes to the reaction mixture. These specially designed probes have two dye molecules attached to opposite ends of the probe, one of which is a "reporter" or "fluorophore" that emits fluorescent light when excited by an incoming light source. The other is referred to as a "quencher" and serves to quench the fluorescent light emitted from the reporter. When both dye molecules are bound to the probe, the quencher and reporter are held in close proximity.

Realtime PCR occurs in four steps. First, a probe anneals to the template, along with the primers. Second, the *taq* polymerase enzyme starts extending the new strand of DNA, starting at the primer until it runs into the Taqman probe and begins to destroy it. (*Taq* polymerase is a exonuclease enzyme. "Exonuclease activity" is the process by which *taq* polymerase removes nucleotides in front of it, one at a time, as it extends the primers to form a new nucleic acid sequence. This enzymatic activity destroys the Taqman probe and releases the fluorophore that was bound to it.)

Third, the destruction of the Taqman probe continues as the enzyme moves along, resulting in the liberation of the fluorescent dye. Fourth, the reporter dye is liberated from the quencher dye so it can fluoresce freely. As it does, the fluorescence in the solution is

detected by a camera or other optical detector. Over more PCR cycles, the glow will intensify progressively as more Taqman probes are destroyed.

Defendant sells three products, (1) the HCV GT ASR; (2) the HCV 5' UTR ASR; and (3) the RealTime HCV Genotype assay, all of which carry out genotyping through the use of realtime PCR, employing Taqman probes. Using the accused reagents for genotyping causes the destruction of the complexes formed between the probes and the nucleotides of the HCV target. The destruction of the complex produces a liberated dye molecule that can be detected. When the accused reagents are used for genotyping, the hybridization probes are part of the PCR reaction mixture.

Plaintiff's commercial embodiment of the '704 patent is a test that uses a membrane strip called the Innogenetics Line Probe Assay. It is one of the preferred embodiments of the patent claims.

When plaintiff filed its initial application for what became the '704 patent, it described the detecting step as "detecting the complexes possibly formed between said probe and the nucleotide sequence of the HCV isolate to be identified." Later, it changed the wording to "detecting any complex as formed with said probe and nucleotide sequence of the HCV isolate to be identified." In its final form, the phrase read, "detecting a complex as formed with said probe and said nucleic acids of HCV."

Claim 1 of the '704 patent reads as follows:

A method of genotyping HCV present in a biological sample comprising hybridizing nucleic acids in a biological sample with at least one probe and detecting a complex as formed with said probe and said nucleic acids of HCV, using a probe that specifically hybridizes to the domain extending from the nucleotides at positions -291 to -66 of the 5' untranslated region of HCV.

Claim 5 reads:

The method of claim 1 wherein the HCV to be genotyped is selected from the group consisting of HCV type 1, HCV type 2, HCV type 3, HCV type 4, HCV type 5 and HCV type 6.

Claim 6 reads in part as follows:

The method of claim 5 wherein the at least one probe hybridizes to at least one domain selected from the group of domains consisting of [enumerated domains].

Claim 7 reads in part as follows:

the method of claim 6, wherein a first probe hybridizes to one of the domains of claim 6, and wherein a second probe hybridizes to a domain selected from the group of domains consisting of [enumerated domains].

Claim 9 of the '704 patent reads as follows:

The method of claim 1 further comprising: before hybridization, amplifying said domain by polymerase chain reaction employing primers complementary to domains extending from nucleotide -341 to nucleotide -171 and from the domain extending from nucleotide -67 to nucleotide -1.

The "Cha PCT Application" has an international publication date of November 12, 1992. One embodiment of the application featured a method of detecting one or more genotypes of HCV. The application disclosed the use of GI-GV to refer to five HCV

genotypes.

U.S. Patent No. 5,580,718 issued to Robert Resnick et al. It is assigned to Hoffman-La Roche, Inc. and is entitled "Primers and Probes for Detection of Hepatitis C and Novel Variants."

By 1990, researchers were using PCR to detect conserved sequences in the 5' UTR and using them specifically to detect the majority of different strains that had been sequenced already. (In this context, "conserve" means "to maintain (a quantity) constant during a process of chemical, physical or evolutionary change." Merriam-Webster OnLine, http://m-w.com/dictionary/conserve). Patients with different HCV genotypes respond differently to therapy.

III. OPINION

A. Infringement

Infringement analysis is a two-step process in which the court must first construe the claims at issue and then compare the properly construed claims to the accused device. Cybor Corp. v. FAAS Technologies, Inc., 138 F.3d 1448, 1454 (Fed. Cir. 1998). A process or method infringes a patent claim if it contains every limitation set forth in that claim, either literally or by equivalence. Johnson Worldwide Assocs. v. Zebco Corp., 175 F.3d 985, 988 (Fed. Cir. 1999). "A patent is infringed if any claim is infringed." Pall Corp. v. Micron

Separations, Inc., 66 F.3d 1211, 1220 (Fed. Cir. 1995). Claim construction is a legal determination to be made by the court, while infringement is a question of fact. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996).

1. Claim construction

Construction of the disputed terms begins with the claim language, which serves to delineate the virtual metes and bounds of the invention, letting competitors know what they can and cannot do in the way of making and selling similar products. Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 619 (Fed. Cir. 1995) (citing Yale Lock Manufacturing Co. v. Greenleaf, 117 U.S. 554, 559 (1886)). Thus, claim construction must adhere carefully to the precise language of the claims that the patent officer has allowed. Autogiro Co. of America v. United States, 384 F.2d 391, 396 (Ct. Cl. 1967) ("Courts can neither broaden nor narrow the claims to give the patentee something different than what he set forth [in the claim]."). "[I]n interpreting an asserted claim, [a] court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history." Vitronics, 90 F.3d at 1582.

At the outset, I note that although defendant suggested in a footnote in its opening

brief that claim 1 might be construed as a "step-plus-function" claim, Dft.'s Br., dkt. #51, at 14 n.4, it abandoned that suggestion in its reply brief. Dft.'s Br., dkt. #99, at 9. Therefore, I have not discussed the possibility that claim 1 should be construed as a "step-plus-function" claim.

Several claim terms are in dispute: (1) "detecting a complex as formed with said probe and said nucleic acids of HCV," which is contained in claim 1; (2) "method of genotyping," in claim 1; (3) "at least one probe hybridizes to at least one domain selected from the group of domains consisting of [enumerated domains]" found in claim 6; (4) "a first probe hybridizes to one of the domains of claim 6, and wherein a second probe hybridizes to a domain selected from the group of domains consisting of [enumerated domains]" found in claim 7; and (5) "before probe hybridization, amplifying said domain" found in claim 9.

a. "Detecting a complex as formed"

Plaintiff contends that this phrase should be construed to mean "any process by which one can determine that a hybridization complex has been formed between the probe and nucleic acids of HCV." Defendant disputes this construction vigorously, arguing that the court should adopt the construction: "Detecting a complex that is formed with said probe and said nucleic acids of HCV." The essential difference between the parties is that defendant believes that the phrase "as formed" requires that detection take place while the

complex is present, or, in other words, while the reporter molecule is still attached to the hybridization complex when it signals the formation of a complex. Under defendant's construction, the phrase would not apply to a process in which the destruction of a previously formed complex liberates the "reporter" end of a probe and causes it to glow, as happens when the *Taq* polymerase destroys a complex during realtime PCR.

Defendant defends its proposed construction with a plethora of arguments. It relies first on the claim language, which in its view requires detection of a complex, not just a remnant of the complex after it is destroyed. Defendant adds that any possibility of ambiguity on this point is eliminated by the words "as formed," which define "complex." According to defendant, the use of "as" implies "in the present; at the same time." Next, defendant argues that the claim specifies the composition of the complex as being a complex "formed with said probe and said nucleic acids of HCV."

Defendant offers no persuasive reason why detection cannot be accomplished by the observation of fluorescence from the probe, rather than by the observation of the amplification of the target nucleic acid by the probe. It is inherent in the nature of realtime PCR that the reporter end of the probe does not emit light unless the *taq* polymerase has destroyed the hybridization complex. If the complex does not exist, the *taq* polymerase will have nothing to destroy and no light will be emitted. The fluorescence demonstrates the existence of the complex, albeit a past existence.

The claim language does not require detection of a presently existing complex, much as defendant would like to read it that way. Defendant relies on the argument that "as" in the phrase "as formed" is a conjunction that "can only mean 'at the time that' and reflects the present tense." Dft.'s Br., dkt. #51, at 19. That argument would have more force if the patent read "while it is formed." It does not. "As" is a protean word with myriad definitions and uses in the English language, but it seems most likely that in claim 1 it is serving as a substitute for "that" or "which," or, in other words, as a pronoun that does not provide temporal information. The two-word phrase "as formed" could be written as "that is formed," "that has been formed" or "that was formed" and retain the same meaning. Equally, "as" could be omitted without changing the meaning of the phrase. The word is not serving the usual function of a conjunction, which is to join together sentences, clauses, phrases or words, as in this example: "She joined me at the bus stop *as* the rain began to fall."

I can leave it to grammar mavens to make the conclusive characterization of the role of "as" in claim 1. The court's task is to determine whether "as formed" must be construed as meaning "still existing." I see no reason why it must be. Whether a hybridization complex is detected while existing or immediately upon destruction, what is detected is still a complex "formed with said probe and said nucleic acids of HCV," as the patent prescribes.

Defendant maintains that plaintiff restricted its claim language during the course of prosecution, beginning with "detecting the complexes possibly formed between said probe

and the nucleotide sequence of the HCV isolate to be identified," moving on to "detecting any complex as formed with said probe and nucleotide sequence of the HCV isolate to be identified," and ending up with "detecting a complex as formed with said probe and nucleic acid of HCV." Defendant reads this progression as increasingly focusing the claim choice to specify detecting an actual [existing] complex, that is, one "as formed." I agree with defendant that the second and third versions are more restrictive than the first, which seems to require nothing more than the possibility of a complex. The changes seem directed to clarifying the object of the detection as a formed complex. They imply nothing about whether the formed complex must still be in existence when detection occurs.

Defendant argues that "detecting" a complex that has been destroyed is akin to "detecting" the existence of a wine bottle by finding a cork. The analogy is inapt. A cork can exist independently of a wine bottle; the fluorescence that realtime PCR assays detect cannot exist independently. At the risk of redundancy, I repeat that if the complex has not been created, the reporter end of the probe will not emit light because the *taq* polymerase will have nothing to destroy.

Finally, defendant points out that some of the preferred embodiments described in the specification utilize existing complexes, but it is settled law that the reach of a patent is determined by its claims and not its specifications. Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1344 (Fed. Cir. 2001). "[A]n applicant is not required to describe in the

specification every conceivable and possible future embodiment of his invention." Id. (citing SRI Int'l v. Matsushita Electric Corp. of America, 775 F.2d 1107, 1121 (Fed. Cir. 1985)). Moreover, the inventors specified in the '704 patent that the detection of hybrids "may be determined by means of colorimetric, fluorescent, radiometric detection or any other method comprised in the state of the art."

Realtime PCR is an investigative tool that allows researchers to determine the existence of certain structures in target strands of DNA or RNA. That determination cannot be made if the structures have never been formed. Therefore, whether the structure is still existing or has ceased to exist, if a researcher can determine that it was formed during the hybridization phase of the process, the researcher has "detected" it in the target strand. It is irrelevant that using the process to find those structures results in the destruction of the structures. I will construe the claim term as requiring detection of a complex that is or has been formed.

b. "Method of genotyping"

The parties have proposed a total of three possible constructions of the term "method of genotyping." Plaintiff proposed:

> A method that distinguishes among types and/or subtypes of hepatitis C virus (HCV) and classifies the HCV into a genotype or subtype.

Defendant proposed the following construction:

> A method for identifying a desired type or subtype of HCV present in biological tissue or fluid;

or, in the alternative,

> A method for identifying any and all types and subtypes of HCV that may be present in biological tissue or fluid.

Read in light of the patent claims and specifications, plaintiff's proposal comes closest to defining the term in a way that conveys the meaning intended by the inventors. The two proposals submitted by defendant omit the concept of *distinguishing* among types or subtypes of HCV and classifying them that is at the heart of the '704 patent. "[T]he am of the present invention is to provide a method for the rapid and indisputable determination ofthe presence of one or several genotypes of HCV present in a biological sample and indisputably classifying the determined isolate(s)." '704 Pat., col 2, lns. 39-43. Defendant's first proposal describes only a method for identifying a desired type or subtype of HCV. Defendant comes closer in its second proposal, which is a method for identifying any and all types or subtypes of HCV. However, neither proposal captures the sense of distinguishing among types or subtypes an classifying the determined isolate or isolates. Therefore, I will use plaintiff's proposed construction: "A method that distinguishes among types and/or subtypes of hepatitis C virus (HCV) and classifies the HCV into a genotype or subtype."

c. "probes hybridizing to at least one domain"

Defendant contends that claims 6 and 7 require specific hybridization, meaning completely homologous base-pairing with no mismatches. ("Homologous" means "exhibiting biological homology; "homology" means "similarity of nucleotide or amino acid sequence." Merriam-Webster OnLine, http://m-w.com/dictionary/homology). Thus, defendant argues, a probe that hybridized to less than an entire domain would not be covered by the claim. Defendant notes that other claims of the '704 patent use more flexible language. For example, in claim 3, the method allows the target domain to comprise "at least 5 contiguous nucleotides" in a list of longer domains. Therefore, defendant argues, the absence of similar language in claims 6 and 7 supports a construction requiring the hybridization of complete domains. At the least, it maintains, the term is susceptible to two distinct meanings (either homologous base-pairing with some mismatches or completely homologous base-pairing with no mismatches) and would leave a person of ordinary skill in the art confused about the meaning of the term.

In response, plaintiff argues that the claim term "specifically," refers to hybridization to sequences of a *specific* type or subtype of HCV and not to other types or subtypes of HCV, as shown in Examples 10 and 11 of the patent specifications. These examples describe the genotype-specific regions a researcher could expect to find in variable regions of the 5' UTR and ways in which to obtain type-specific hybridization.

In its supplemental proposed finding of fact, defendant cites the testimony of one of the inventors of the '704 patent, Lieven J. Stuyver, to the effect that specific hybridization as used in the patented method "requires perfect matching between the nucleotides of a probe and the nucleotides of the HCV pairing such that there is completely homologous probe/target base pairing, with no mismatches." Stuyver's testimony suggests that perfect matching of the nucleotides must occur in all circumstances; if this is his reading, it contradicts the patent specifications. In Example 11, for example, the patent specifies that in certain hybridization conditions

> it may also be preferable to elongate or shorten the contiguous HCV sequence and/or to reverse the sense of the probes to allow genotype-specific hybridization at a certain preferred temperature or salt concentration. However, in some cases, it may be preferable to include inosines or mismatching nucleotides to allow genotype-specific hybridization at a certain preferred temperature or salt concentration.

Col. 35, lns. 32-34-col. 36, lns. 1-4. The patent specifications are intrinsic evidence of the meaning of the patent language; in the evidentiary hierarchy, they take precedence over extrinsic evidence such as the opinions of outside experts. Phillips v. AWH Corp., 415 F.3d 1303, 1317(Fed. Cir. 2005) ("while extrinsic evidence 'can shed useful light on the relevant art,' we have explained that it is 'less significant than the intrinsic record in determining "the legally operative meaning of claim language"'") (quoting C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 862 (Fed. Cir. 2004) (quoting in turn Vanderlande Indus. Nederland

BV v. Int'l Trade Comm'n, 366 F.3d 1311, 1318 (Fed. Cir. 2004)). Moreover, Stuyver does not fall into the category of an expert; he is an inventor discussing his subjective intent in using a particular term. The Court of Appeals for the Federal Circuit considers inventor testimony of little value when construing claim language. E-Pass Technologies, Inc. v. 3Com Corp., 343 F.3d 1364, 1370 n.5 (Fed. Cir. 2003) ("inventor testimony is of little probative value for purposes of claim construction"); Markman v. Westview Instruments, Inc., 52 F.3d 967, 985 (Fed. Cir. 1995).

Read in light of the specifications and claims, plaintiff's proposed construction is more convincing than defendant's. In order to produce the desired information, hybridization must be specific to the nucleotides that are unique for each genotype or subtype at given positions in the probe. Therefore, I will construe hybridization to mean "hybridizing a probe to a target sequence and not to a non-target sequence."

d. "Amplifying domain before hybridization"

The parties' dispute about the construction of this term in claim 9 centers on one issue: whether the claim can be met only by a process that performs the amplifying step first, before any hybridization takes place. The dispute arises because the realtime PCR process involves first hybridizing the probes to the target, then extending the DNA (the amplification step).

The claim language is clear and requires no judicial construction. Amplification must occur before hybridization.

2. Comparison of claims to accused devices

a. Claim 1

Defendant's claim of noninfringement appears to rely wholly on its position that its accused devices do not detect an existing complex but detect only the remnants of one by observation of the fluorescence liberated by the reporter probe following destruction of the complex. This position provides them little cover, however, when the term "detecting a complex as formed" is construed properly. The term is not limited to the detection of an existing complex, but is applicable to detection of fluorescence that indicates that the complex has been formed. If, as seems likely, when defendant's products are used as prescribed by defendant, they detect the formation of a hybridization complex that has been formed between a probe and target nucleic acids of HCV, the products will be found to infringe claim 1 of plaintiff's patent. See, e.g., the deposition testimony of Gregor Leckie, project manager for defendant's development of HCV genotyping assays (a "real-time assay detects fluorescence . . . and they have to be released from the probe they formerly were bound to, so it has to be an unbound fluorophore which fluoresces"). Were it otherwise, and defendant's products did not detect the hybridization complex through observation of the

reporter's fluorescence, why would researchers use defendant's products?

Plaintiff has adduced sufficient evidence to go to the jury on its claims of infringement of the disputed dependent claims. If, for example, the accused products are shown to have probes that hybridize specifically to target sequences, exhibiting the expected homology, they will be found to infringe claims 6 and 7 (provided they meet the remaining criteria of the claims).

It is clear that defendant has failed to show the absence of any material dispute as to non-infringement. Therefore, its motion for summary judgment on plaintiff's claim of infringement will be denied. It is unnecessary to discern infringement under the doctrine of equivalents at this stage of the proceedings.

Because a jury may find that defendant's products infringed the '704 patent, it may also find indirect infringement by the users of defendant's products. (Defendant's only defense to the claim of indirect infringement is that its own products do not infringe. It does not assert, for example, that it did not intend that its customers would use its products in an infringing way and that it took steps to insure that they were not used that way.)

B. Invalidity

Patents issued by the United States Patent Office are deemed valid. 35 U.S.C. § 282. Proving them invalid requires clear and convincing evidence that the inventor has not

met the requirements for patenting, North American Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 1579 (Fed. Cir. 1993), one of which is a showing of novelty. As relevant to this case, an applicant is not entitled to a patent if the invention was patented or described in a printed publication in this or a foreign country or in public use or sale in this country more than one year before the application for a United States patent. 35 U.S.C. § 102(b). A patent issued in such circumstances would be invalid for anticipation.

Defendant contends that the '704 patent is invalid because the Cha PCT application filed in the European patent office disclosed every limitation of the patent claims, as did the Resnick patent, U.S. Pat. No. 5,580,718. In the alternative, defendant contends that, even if the court were to find the '704 patent not anticipated, the court would have to find it obvious in light of the prior art. 35 U.S.C. § 103(a) (prohibiting issuance of a patent on an invention "if the differences between the subject matter sought to be patented 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").

1. Anticipation

The Cha PCT application qualifies as prior art to the '704 patent under § 102(b), because its International Publication Date was November 12, 1992 and it was slightly more

than one year later (November 26, 1993) that plaintiff filed the Patent Cooperation Treaty application from which the '704 patent claims priority. Defendant contends that the Cha PCT application teaches persons of ordinary skill in the art how to detect various genotypes of HCV and to distinguish among them, and that it discloses a procedure for performing a "genotyping analysis" that can be performed on various regions of HCV, including the 5' UTR region.

Plaintiff disputes defendant's contention, arguing that the Cha PCT application was directed at detecting genotypes and did not disclose a method of distinguishing among them. Plaintiff supports its argument with, among other things, the patent office's conclusion that the claims of the '704 patent were allowable over the prior art because the claimed methods are concerned with genotyping HCV and not just detecting it. (As I found in the Opinion and Order entered herein on July 17, 2006, the patent office had the Cha PCT application before it when it reached its conclusion.). Plaintiff also cites the report of its expert, Howard Worman, M.D., to the same effect, as well as his statement that "the Cha PCT does not teach a method of genotyping hepatitis C virus using probes that specifically hybridize to the 5' UTR." Worman Rep., dkt. #41, at 11.

The Cha PCT application describes two nucleic acid hybridization experiments. In the first, the core or envelope regions of the 5' UTR of the HCV genome were said to be amplified by PCR. According to plaintiff's expert, William Reznikoff, the experiment did

not constitute a method of genotyping using the 5' UTR because it detected only genotypes I and II using the core and envelope regions for detection and not the 5' UTR. Reznikoff found it probable that these experiments would have taught away from using whatever methods a person of ordinary skill in the art could glean from the Cha reference to detect genotypes.

In the application's second experiment, the researchers used probes designed to the 5' UTR to detect genotypes III and IV, but used other probes designed to the envelope region to detect genotypes I and II. Reznikoff believes that such detection should occur only if the latter probes were capable of hybridizing to non-target sequences or if the PCR amplification were not specific to the specified region, or both. The data do not explain what may have led to the results claimed and they do not indicate the lack of cross-reactivity against other genotypes. Reznikoff concludes that the odd results call into question the researchers' claim that "each sequence hybridized in a genotype specific manner." If the claim were true, probes designed to the envelope region should not be capable of hybridizing specifically to the 5' UTR.

The Court of Appeals for the Federal Circuit has held that invalidity based on anticipation "requires that the assertedly anticipating disclosure enabled the subject matter of the reference and thus of the patented invention without undue experimentation." Elan Pharamaceuticals v. Mayo Foundation, 346 F.3d 1051, 1053 (Fed. Cir. 2003) (en banc); see

also In re Donohue, 766 F.2d 531, 533 (Fed. Cir. 1985) ("It is well settled that prior art under 35 U.S. C. § 102(b) must sufficiently describe the claimed invention to have placed the public in possession of it."). Plaintiff's experts have expressed opinions that the Cha PCT application would not have enabled persons of ordinary skill in the art to practice the experiments described in the application. Defendant contends that the opinions are without foundation and can be shown to be in error. Defendant may be correct, but its disagreement does not mean that it is entitled to summary judgment on the issue. Anticipation is a question of fact. Elan Pharmaceuticals, 346 F.3d at 1054. Plaintiff's showing is more than sufficient to put into dispute material issues of fact on the matter of enablement. Therefore, the matter must be left to the jury to decide.

The Resnick '718 patent does not appear to disclose genotyping but rather to be limited to detecting. Its title is "Primers and Probes for the Detection of Hepatitis C and Novel Variants." It is not directed to classifying isolates into genotypes, but simply to the development of probes that could detect two different isolates or strains of hepatitis C virus. Defendant argues vigorously that the patent discloses every step of the process disclosed in the '704 patent, provided that defendant's proposed construction of "method of genotyping is adopted. I have not adopted defendant's proposed construction, making it unlikely that the Resnick patent will be found to anticipate. It will up to the jury to decide whether it does or does not. However, it is difficult to imagine that if the Resnick '718 patent disclosed

every claim limitation of the '704 patent, the owner of the patent, Hoffman-LaRoche, Inc., would have paid an upfront fee of five million euros for a license to the '704 patent family, as plaintiff alleges it did. I conclude that defendant has failed to establish the absence of disputed material facts on the question of anticipation of the '704 patent by the Resnick patent.

Plaintiff contends that there are numerous other reasons why defendant's assertion of anticipation should be rejected. It is not necessary to discuss them in this opinion, however, because plaintiff has come forward with sufficient facts to put the assertion into dispute for a jury to resolve.

2. Obviousness

Defendant's assertion of obviousness seems to be based on its arguments that (1) researchers in the field were highly motivated to combine the broad teachings of the prior art in order to advance patient treatment; (2) defendant's prior argument of anticipation; and (3) the broad scope of claim 1 of the '704 patent. (Defendant contends that the broad scope is shown by the absence of any steps for determining what sequences within the claimed domain of 5' UTR should or could be used to practice the method or classify the detected genotypes into an established system or nomenclature.). Defendant has prepared a chart purporting to show how a person of ordinary skill in the art would combine the

teachings of the '718 patent and the Cha PCT application. However, this chart is of limited value because it relies on claim constructions that I have not adopted.

Defendant does not develop its assertion of motivation other than to say that people in the field were highly motivated to find and classify the various kinds of HCV. This is a given. It is also irrelevant. The question defendant should have addressed is whether a person of ordinary skill in the relevant art would have had the motivation to combine these two particular pieces of prior art.

IV. SUMMARY

Defendant has failed to show that it is entitled to summary judgment on its claims of noninfringement and invalidity. Plaintiff has adduced sufficient evidence to show that a reasonable jury could find both that defendant infringed at least some of the disputed claims of plaintiff's '704 patent and that defendant has failed to show that the patent is invalid.

ORDER

IT IS ORDERED that defendant Abbott Laboratories' motion for summary judgment on plaintiff Innogenetics N.V.'s claim of infringement and on its own claim of invalidity is DENIED. FURTHER, IT IS ORDERED that plaintiff's motion to amend its proposed finding of fact no. 76 is GRANTED, as is its motion to strike defendant's new claim

construction and new assertion of inherent anticipation; and defendant's motion for leave to supplement its proposed findings of fact in support of its motion for summary judgment is GRANTED.

The disputed claim terms are construed as follows:

"Detecting a complex as formed" means "detecting a complex that is or has been formed."

"Method of genotyping" means "A method that distinguishes among types and/or subtypes of hepatitis C virus (HCV) and classifies the HCV into a genotype or subtype."

"Probes hybridizing to at least one domain" means "hybridizing a probe to a target sequence and not to a non-target sequence."

"Amplifying domain before hybridization" means that amplification must occur before hybridization.

Entered this 11th day of August, 2006.

BY THE COURT:

/s/

BARBARA B. CRABB
District Judge