UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF ILLINOIS EASTERN DIVISION

PROMEGA CORPORATION,	)	
	)	No. 13-cv-2333
Plaintiff,	)	
v.	)	Judge Richard A. Posner
	)	
APPLIED BIOSYSTEMS, LLC.,	)	
LIFE TECHOLOGIES CORP., and	)	
CALIFORNIA INSTITUTE	)	
OF TECHNOLOGY,	)	
Defendants.	)	

ORDER OF MAY 27, 2013

POSNER, *Circuit Judge*, sitting by designation. I conducted *Daubert* hearings on May 22–24, 2013, to consider challenges, based on Fed. R. Evid. 702 and pertinent judicial decisions, to the expert opinions offered in support of the parties' liability and damages theories. At the *Daubert* hearings I both heard arguments from the attorneys and questioned the experts (with one exception, because he had not yet been deposed—Jerry Ruth).

Life Technologies' Experts

*Carl Batt***.** Promega did not challenge Dr. Batt and my interchange with him at the *Daubert* hearing persuades me that he is qualified to provide relevant expert testimony.

Norman Dovichi. A professor of biochemistry, Dr. Dovichi opines that various prior art references published in the 1980s do not anticipate the '096 patent claims or render them obvious. He is qualified to opine on these issues.

Promega challenges his opining on secondary considerations of non-obviousness—evidence that the research and business community responded quickly and positively to the invention, suggesting that it was not obvious. (Had the invention, though valuable, as indicated by the business community's reaction, been obvious, presumably it would have been made earlier.) Dovichi says his "understanding" is that Life Tech and Promega each receive "significant revenue" from products covered by the '096

patents, but he does not support this claim or attempt to determine how much of the revenue is attributable to the patents; nor has he the expertise in economics or accounting that would enable him to make such a detrmination.

He also opines that "the fact that Promega have [*sic*] been selling products that are covered by the '096 patent is evidence that others have been copying the invention." That's a non sequitur. If the claims are obvious, Promega could have based its products on the prior art without copying Life Tech's products. I conclude that he is not qualified to testify about commercial success or copying of products based on the patent.

Dovichi attempts to bolster his contention of obviousness by claiming that the Smith 1986 paper, a paper in which the inventors of the '096 patent reported their research, was widely praised, suggesting that the advance made by the invention over the prior art was significant. But his only evidence is that the Smith 1986 paper has been cited 983 times. He offers no evidence that this is an unusually high number of citations for papers dealing with the pertinent aspects of DNA analysis, or that the citations are on balance positive. Citations can be negative as well as positive, and while Dovichi remarked dismissively at the Daubert hearing that of course he had not read all the articles that have cited the Smith paper, he could have read a random sample of them and did not. He also does not address whether praise for the Smith 1986 paper is an adequate proxy for praise for the patent. The contents of the paper do not overlap completely with the patent, and some citations may have been to features of the paper that do not appear in the asserted claims.. Dovichi may testify about the reputation of the inventors and the response of the biochemistry community to the invention itself, but may not offer analysis based on the response to the Smith 1986 paper.

Jed Greene. Mr. Greene is Life Tech's witness on damages. The 2006 cross-license between Promega and a Life Tech subsidiary specified a 2 percent royalty on sales of Promega products in the "Genetic Identity" field (primarily forensic analysis and paternity testing). Greene's report calculates the sales covered by the 2006 cross-license from internal data of Promega that categorize customers by field of use, and the sales outside of the Genetic Identity field (that is, sales outside the "field of use" of the 2006 cross-license) as well, because the latter sales constitute the base to which to apply a reasonable royalty in order to determine Life Tech's damages should Life Tech prevail on liability. Although Promega challenges Greene's decision to treat world-wide sales as infringing (should liability be found), the parties have not briefed the legal issues concerning the geographic scope of infringement, so I will not attempt to resolve them here. Greene may testify to the dollar amount of the sales to which, if infringement is found, a royalty rate may be applied, subject to my ruling on geographic scope.

Greene opines that a reasonable royalty rate would be 10 percent. Promega moves to exclude his opinion on the grounds that he fails to justify his conclusion, in part by ignoring the 2006 cross-license and failing to determine the value of Promega's products that is attributable to the patented technology.

Greene read 20 intellectual property licenses entered into by either Life Tech or Promega. The royalty rates ranged from 3 to 15 percent. He decided to narrow the range to between 7.5 and 15 percent based on six licenses that he claims are the ones most relevant to the '096 patent, then further narrowed it to between 8 and 12 percent without explanation before finally settling on 10 percent, the midpoint of that range, as his opinion of a reasonable royalty for sales of infringing products outside the field of use. His report does not identify the six licenses he relied on or explain why they were the most relevant, and he could not identify them at the *Daubert* hearing.

Some of the license agreements from which he derives his 10 percent estimate of a reasonable royalty license a predecessor to the '096 patent and any "continuations" (which would include the '096 patent itself), but license it or them for applications that may not relate to the specific patent claims at issue in this case. Moreover, each of the licenses covers multiple patents, not just the '096 patent and its predecessor, and Greene has not determined what percentage of the royalty rates in these licenses is attributable to the patent. Using the midpoint of a range of royalty rates in disparate licenses for unknown different inventions as the estimate of a reasonable royalty for a license for Promega products outside the field of use of the 2006 patent is arbitrary. See *Wordtech Systems, Inc v. Integrated Networks Solutions, Inc.*, 609 F.3d 1308, 1320 (Fed. Cir. 2010) ("comparisons of past patent licenses to the infringement must account for 'the technological and economic differences' between them"); *Lucent Technologies, Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1325 (Fed. Cir. 2009) ("licenses relied on by the patentee in proving damages [must be] sufficiently comparable to the hypothetical license at issue in suit"). At the *Daubert* hearing, as at his deposition, Greene testified simply that he considered the totality of the circumstances. But generalized impressions are no substitute for a method of computing, and evidence justifying, a reasonable royalty rate.

He might instead have started from the 2 percent royalty rate in the cross-license, identified likely differences between the 2006 negotiations and a hypothetical 2012 negotiation for a royalty for sales outside the field of use, and attempted to quantify the impact of these differences. He does note, for example, that the development of the stem cell market might have made the patent more valuable outside the Genetic Identity field in 2012 than it had been in 2006, but he offers no estimate of how much more valuable. And though he discusses Promega's high profit margin on the allegedly infringing products and argues that there are no commercially viable non-infringing alternatives to which Promega might have turned had it realized it was infringing a valid patent, he

offers no estimate of the profits that Promega would have lost had it not obtained a license and had ceased selling the products in question outside the field of use, or the share of those otherwise-lost profits that Life Tech could have extracted in negotiating a license. He did none of these things and so cannot be permitted to testify to a reasonable royalty rate.

Promega's Experts

Randall Dimond. Dr. Dimond is Promega's Chief Technical Officer. His expert reports opine that Promega's products do not infringe the '096 patent because they do not involve a method of nucleic acid sequence analysis or an oligonucleotide specifically hybridized (that is, matched) to a complementary DNA strand. He also identifies several non-infringing alternatives that Promega could have used instead of the fluorescent tags disclosed by the patent. In addition to the expert testimony contained in his report, Dimond intends to testify as a lay witness about Promega's products and license negotiations, matters he learned about through his job at Promega.

Life Tech asks me to bar Dimond from testifying in a dual capacity as both expert and lay witness. It argues that such testimony will confuse a jury, which will have difficulty separating Dimond's fact testimony from his expert opinions and will therefore give excessive weight to testimony unrelated to his expertise. In response, Promega offers to separate Dr. Dimond's trial testimony into two separate portions, first as a lay witness and then as an expert witness. But "telling the jury that a witness is both a lay witness *and* an expert witness and will be alternating between the two roles is potentially confusing—and unnecessary. The lawyer examining the witness need only ask him the basis for his answer to a question." *United States v. Moreland*, 703 F.3d 976, 983 (7th Cir. 2012). Hence I reject Life Tech's motion to exclude Dimond by virtue of the dual capacity in which he'll be testifying. Life Tech further argues that Dimond is biased because he has a stake in the suit's outcome as an employee and shareholder of Promega, but this is an issue that a jury can understand and give the proper weight to.

Where Dimond goes off the rails, and will not be permitted to offer testimony, concerns the issue of "specific hybridization." A molecule is specifically hybridized when it is designed to bind to a particular DNA sequence, which is the initial step making the multiple copies of the target DNA strand that are necessary for scientific instruments to be able to measure the strands. (They are measured by use of an electric field to pull them across a gel medium. Shorter strands move faster, and measuring the strand's location after a set time interval indicates its length. Although each copy of the target DNA will be tagged with one fluorescent molecule, indicating its position in the gel, a single flurophore is too weak to be detected in the gel, so multiple fluorescently-

tagged copies are necessary.) Claims 62 and 66 of the '096 patent involve oligonucleotides "specifically hybridized to the complementary strand of DNA." I construed the term in my claims-construction ruling to cover oligonucleotides (DNA molecules) "hybridized to a specific locus [i.e., location] on the complementary strand of DNA, even if that that locus is not unique." Promega had argued that its oligonucleotides are not specifically hybridized (hence don't infringe) because each can bind to more than one site in a DNA sample. I rejected this argument, ruling that oligonucleotides "engineered to hybridize to specific locations in a DNA sample" are "specifically hybridized" within the meaning of the patent even if they "can potentially bind to multiple loci on human genomic DNA." Dimond now concedes that this is correct if the oligonucleotides bind to multiple "related" sites, but he argues that Promega's oligonucleotides aren't specifically hybridized because each one may bind to unrelated sites on a DNA strand. This distinction between related sites (repetitions of the same gene at different locations in the human genome that share a common evolutionary origin) and unrelated sites (chance repetitions of the same nucleotide sequence) has no basis in either the patent or my claim construction. I explained that the patent never requires that the oligonucleotide bind solely to a single nucleotide sequence, as long as it's designed with a specific target in mind. Dimond's proposed opinion testimony about specific hybridization is irrelevant to infringement, and so will not be permitted. See Fed. R. Evid. 402, 702; *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 591–92 (1993).

Stephen Kent. Dr. Kent was a Senior Research Associate at Caltech from February 1983 to June 1989, a period that includes at least part of the time during which the research that culminated in the '096 patent, filed in January 1984, was conducted. He opines that Life Tech's claims for a "method of nucleic sequence analysis" (which I defined in my claims construction as "any method of obtaining information about a genetic sequence") are invalid because the patent's written description of the invention does not disclose any such method other than DNA sequencing (determining the identity and order of each and every nucleotide in a DNA sequence) and therefore does not show that the scope of the patented invention is as broad as claimed in the patent.

Kent relies primarily for his opinion on his personal observations of the activities performed by Caltech researchers during his time there—more than thirty years ago. Promega's lawyers could not explain at the *Daubert* hearing why personal recollections are relevant to the adequacy of a patent's written description, which depends only on whether it "reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Ariad Pharmaceuticals, Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010). Kent may not testify to those

activities or to his recollections of them. My ground is lack of relevance but I add that I am distrustful of the accuracy of recollections that are more than thirty years old, lack any confirmation in notes or other written or otherwise recorded materials or in the recollections of other persons, and are likely to be colored by what the recollector has learned since (hindsight bias).

Kent further claims, however, that his more than thirty-year-old experience at Caltech makes him a person of ordinary skill in the art at the time of the invention, qualifying him to opine on what the specification would have conveyed to one skilled in the art at that time. But his opening report does not discuss the adequacy of the specification, and his supplemental report, rather than filling that gap, focuses on his recollections of the activities of the Caltech researchers who invented the '096. The recollections that he emphasizes are that he was "not aware of any method of nucleic acid sequence analysis—other than DNA sequencing—routinely performed in the Hood Lab [of Caltech] as of January 16, 1984" and that "none of the inventors were in possession of PCR [Polymerase Chain Reaction." These observations are irrelevant to the adequacy of the written description or to how a person of ordinary skill in the art would understand it.

Fed. R. Civ. P. 26(a)(2)(B)(i) requires that all testifying experts submit "a complete statement of all opinions the witness will express and the basis and reasons for them." Kent's reports do not contain anywhere near a complete statement of his opinion on the adequacy of the specification in the '096 patent (the only issue about which he seeks to be permitted to testify).

Brian Van Ness. Dr. Van Ness, a professor of biochemistry, opines that the priority date of the '096 patent is subsequent to January 16, 1984 (the date claimed by Life Tech-the date the patent application was filed), because the patent application filed on that date does not enable the claims to be practiced or provide an adequate written description. In particular, he opines that the particular "12-mer" oligonucleotide described in the 1984 application could not properly hybridize to a complementary strand of DNA, as the patent requires. According to the inventors' lab notes, the 12-mer sometimes resulted in a "weak" or "smeary" signal in the inventors' tests before and after the filing of the application. Van Ness is qualified to assess the inventors' lab notes, and may opine that the priority date is later than 1984.

Like Dimond, however, Van Ness would also like to testify that Promega's oligonucleotides are not specifically hybridized. That is impermissible for the same reason that I am forbidding Dimond to give such testimony.

Nikos Panayotatos. Dr. Panayotatos, an independent consultant in biotechnology, seeks to demonstrate that the '882 (Ruth) patent (U.S. Patent No. 4,948,882, first filed in 1983), which like the '096 patent describes fluorescent tagging of DNA strands, either anticipates or renders obvious the claims of the '096 patent. He conducted an experiment to demonstrate that oligonucleotides tagged using the Ruth method are extendable (meaning that additional nucleotides, necessary for DNA replication and therefore for DNA analysis, can be attached to them). Panayotatos tested four oligonucleotides, each with the same DNA sequence, three of which were fluorescently tagged at different locations. All three variants were found to be extendable. While an experiment testing other sequences or tagging locations would have been desirable, Panayotatos's experiment provides some support for the argument that some or all of Ruth's oligonucleotides are extendable, and he may therefore testify about it. However, I warn that he was unresponsive when I asked him to explain the experiment in simple, lay terms that would be intelligible to jurors. The trial will be a jury trial. If he is unable to testify at a level intelligible to jurors, I will not permit him to testify at all.

Life Tech contends that Panayotatos's report does not adequately explain his conclusion that prior art references anticipate the '096 patent's claims or render them obvious. His report incorporates by reference an "invalidity claim chart" prepared by Promega's attorneys. The chart consists of excerpts from the Ruth patent and other citations, with no analysis. Experts may not merely rubber stamp a lawyer's argument. But Panayotatos's report also contains his own assessments of the Ruth patent, and he may testify to those—but only to those.

Life Tech further objects that although Panayotatos opines that the dependent claims of the '096 patent are invalid, he offers no support for that opinion other than his discussion of the independent claims. But that discussion provides some basis for his conclusions about the dependent claims, which contain many elements of the independent claims. He need not opine on all elements of the dependent claims in order to opine that some elements are obvious or anticipated. But he may not offer testimony on claim elements not discussed in his report.

Finally, Life Tech objects to Panayotatos's testimony about the degree of experience that a person of ordinary skill in the art would possess, but his experience in the biochemistry field during the relevant time period qualifies him to opine on that issue.

Carl Degen. Mr. Degen is Promega's expert witness on damages. Degen opines that 80 percent of distributor sales are within the scope of the 2006 cross-license (and so are not a basis for damages in this case) because 80 percent of Promega's direct customer sales are within that scope. But he admits that neither he nor Promega has no information about what percentage of resales by distributors are within that scope and

so not a part of the royalty base for determining damages for infringement of the '096 patent. Hence he will not be permitted to testify that any distributor sales are covered by the cross-license. Degen also identifies sales to North American customers based on the sales-district field in Promega's customer data. Whether he can testify about those sales will depend on my legal determination of the geographic scope of infringement.

Subject to these exclusions, Degen may testify about the proper royalty base.

As to royalty rate, Degen concedes that a reasonable royalty for a license for Promega products outside the field of use of the 2006 cross-license would be 2 percent or perhaps slightly higher. I take this to be a concession by Promega that if it is determined to have infringed the '096 patent, Life Tech is entitled to a 2 percent royalty. Since I am not permitting Jed Greene, Life Tech's only expert witness on damages, to testify as to royalty rate, I don't see what relevance (given the concession) Degen's testimony would have with regard to that rate. A concession doesn't require a witness.

In many cases lay as distinct from expert evidence is adequate for calculating damages, but I don't see how that could be so when one is dealing with so complex a technology as involved in this case. If last year Promega had admitted infringement, the royalty that Life Tech could have extracted from it would have depended primarily on Promega's alternatives, rather than on the terms of other licenses, including the 2006 cross-license. I see nothing in the parties' preparation of this case that provides a basis for a jury's assessing damages. Before I decide whether to allow Degen to testify, I want the parties to submit briefs clarifying their positions on damages and explaining what evidence they propose to present on damages given my exclusion of Greene's royalty rate opinion. My inclination at present is that the only basis for any award of damages is what I take to be Promega's 2 percent concession, and that it should be possible for the parties to stipulate, or for me to resolve on summary judgment, the royalty base and hence remove the damages issue from the trial entirely. These briefs shall be due on May 31 and if the parties prefer can be incorporated as part of the summary judgment briefs they'll be filing that day.

United States Circuit Judge

May 27, 2013