IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

THE JOHNS HOPKINS UNIVERSITY, a Maryland corporation, BAXTER HEALTHCARE CORPORATION, a Delaware corporation, and BECTON DICKINSON AND COMPANY, a New Jersey corporation,	)	
Plaintiffs,	)	Civil Action No. 94-105-RRM
v.	)	
CELLPRO, a Delaware corporation,	)	
Defendant.	)	

OPINION

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Dated: July 24, 1997

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McKELVIE, District Judge

This is a patent case. On March 11, 1997, a jury returned a verdict finding that the defendant, CellPro, Inc., willfully infringed certain claims of plaintiffs' patents and awarded $2,320,493 in compensatory damages. Plaintiffs have moved pursuant to 35 U.S.C. § 284 for an order increasing the damages to three times the award. This is the court's decision on that motion.

I. FACTUAL AND PROCEDURAL BACKGROUND

The Johns Hopkins University owns U.S. Patent No. 4,965,204 (the " '204 patent"). Johns Hopkins has licensed the '204 patent to plaintiff Becton Dickinson and Company, which in turn sublicensed it to plaintiff Baxter Healthcare Corporation. The '204 patent claims all monoclonal antibodies that specifically bind to the antigen identified as "CD34."

A. The Pleadings and Findings of Infringement

On March 8, 1994, plaintiffs filed a complaint alleging that defendant CellPro, Inc. is willfully infringing claims 1, 2, 4, and 5 of the '204 patent. CellPro denied infringement and asserted certain affirmative defenses, including that the '204 patent is invalid and unenforceable. In addition, CellPro counterclaimed for plaintiffs' alleged violation of antitrust law and for a declaratory judgment that the '204 patent and three other patents owned by Johns Hopkins, U.S. Patent Nos. 4,714,680 (the " '680 patent"), 5,035,994 (the " '994 patent"), and 5,130,144 (the " '144 patent"), are invalid,

unenforceable, and not infringed. The '680 patent is directed to a purified suspension of stem cells. The '994 patent is directed to a method of creating such a purified suspension of stem cells using CD34 antibodies. Finally, the '144 patent is directed to a method of using that purified suspension of stem cells in bone marrow transplants.

All four patents-in-suit are collectively known as the "Civin patents" after their inventor, Dr. Curt Civin. Civin is a physician and professor at The Johns Hopkins University School of Medicine and The Johns Hopkins University Hospital in Baltimore, Maryland.

In their reply to CellPro's counterclaim, plaintiffs denied the invalidity and unenforceability of the Civin patents. In addition, they alleged that CellPro is infringing, contributorily infringing, and inducing infringement of the '680, '994, and '144 patents. Pursuant to a stipulation entered into by the parties, the court issued an order deferring the antitrust phase of the case until after the patent issues were tried.

The case was first tried to a jury beginning on July 24, 1995. On August 4, 1995, the jury returned a verdict finding that the claims of all of the Civin patents were invalid as obvious in light of the prior art. The jury also found that, except with respect to unasserted claims 3 and 6 of the '204 patent, each claim of the Civin patents was invalid as not enabled. The jury further found that CellPro did not literally infringe the claims of the '204 patent and that CellPro did not literally infringe, contributorily infringe, or induce infringement of the asserted claims of the '680, '994, and '144 patents. By an

opinion and order dated June 28, 1996, the court granted plaintiffs' motion for judgment as a matter of law on the following issues: 1) infringement and induced infringement of the '680 patent; 2) induced infringement of the '144 patent; and 3) enablement of the '680 patent. The court granted plaintiffs' motion for a new trial on the following issues: 1) whether the '204 and '994 patents are infringed; 2) whether the '204, '680, '994, and '144 patents are obvious; and 3) whether the '204, '994, and '144 patents are enabled. A copy of the opinion is published at The Johns Hopkins Univ. v. CellPro Inc., 931 F. Supp. 303 (D. Del. 1996). Subsequently, plaintiffs withdrew their claims for relief relating to the '994 and '144 patents, and the court entered orders granting judgment for plaintiffs on their claim for literal infringement of the '204 patent, on CellPro's affirmative defense of reverse doctrine of equivalents, and on CellPro's affirmative defenses and counterclaims of obviousness and nonenablement with respect to the claims of the '204 and '680 patents.

B. Trial on Claims of Willful Infringement

The issues of damages and willful infringement were tried to a jury beginning on Tuesday, March 4, 1997. At trial, plaintiffs offered evidence to establish the following in support of their claim that CellPro willfully infringed the Civin patents.

A group of investors formed CellPro in 1989 for the purpose of using technology developed by Drs. Ron Berenson and Bill Bensinger at the Fred Hutchinson Cancer Research Center in Seattle, Washington to make products to produce highly-purified stem

cell suspensions using a CD34 antibody. Joseph S. Lacob, a venture capitalist with a background in biochemistry and public health, was CellPro's first president. Thomas P. Kiley, a venture capitalist with a background in intellectual property, served as a member of the board and the company's legal advisor.

In March 1989, Lacob, Kiley, and others raised $2.2 million as an initial investment in the company. The directors hired a new president, Christopher H. Porter. Dr. Porter has a Ph.D. in chemical engineering and had worked for Pfizer before joining CellPro.

At the time they formed CellPro, the investors and the officers and directors of the company were aware of Civin's '680 patent on stem cell suspensions. And they were monitoring the Official Gazette of the Patent Office for the issuance of other patents to Civin, including a patent on an antibody to the CD34 antigen, as they were aware Civin had included claims to the antibody in the parent application that gave rise to the '680 patent.

At the trial, Kiley testified he has some familiarity with the technology at issue and the patent laws. He has an undergraduate degree in chemical engineering and was a patent examiner for two years before he graduated from law school. In private practice as an associate and later as a partner at the law firm of Lyon & Lyon, he handled patent applications and patent litigation. He represented biotechnology companies, including companies that focused on monoclonal antibodies. Kiley also testified he has substantial

experience in reviewing and evaluating formal opinions from counsel on the issues of patent validity.

Kiley testified that in connection with his work as legal counsel to CellPro's Board of Directors, he obtained and reviewed a copy of the Patent and Trademark Office's file on the prosecution history of the '680 patent and had concluded the patent was invalid.

At Kiley's suggestion, in late March or early April 1989, CellPro hired Lyon & Lyon and its partner Coe Bloomberg to provide an opinion with regard to the '680 patent. (Kiley testified: "Well, I thought that it would be appropriate that we have counsel opine on its potential for doing [us] harm.") Bloomberg visited CellPro in May 1989. At a Board of Directors meeting on May 5, Bloomberg reported he had reviewed the file wrapper of the '680 patent and had concluded the patent was invalid for obviousness based on the prior publication of two abstracts describing Civin's work.

Kiley testified that at that meeting he advised the Board he shared Bloomberg's view the patent was invalid.

> . . . Mr. Bloomberg opined that the claims of the Civin patent were invalid for obviousness, based on the prior publication of Dr. Civin, which had been published more than a year before the patent application had been filed. And we discussed that. I remember that we discussed that the Federal Circuit Court of Appeals had held in a case in which he had been involved, Hybritech v. Monoclonal Antibodies, that as of, I think it was 1980, that persons skilled in the art were familiar with the details of the Kohler and Milstein process by which monoclonal antibodies were made. And, in addition, we discussed a passage in the description portion of Dr. Civin's patent application in which he was obliged to tell

> readers of the patent how to make the monoclonal antibodies, so that the cell suspensions of the patent could be made using those. What he said was that the process by which stem cell antibodies are made was well-known to those skilled in the art.

Kiley testified that the Board did not ask Lyon & Lyon to include an infringement analysis in its opinion.

> Well, at that early stage of the company, the product itself was not yet in being. Whether the company would emphasize the stem cell product or another was a little bit of a moving target. We simply didn't know what the ultimate cell suspension would look like.

Unfortunately, neither Kiley nor Bloomberg had available at the trial any notes either might have taken with regard to the opinion that was given during that meeting.

Bloomberg apparently repeated his oral opinion of invalidity to the Board in September 1989.

In February 1990, Bloomberg wrote to Porter and Lacob to confirm his prior oral opinion. In his letter, Bloomberg reported that his firm had concluded the Civin '680 patent was invalid and unenforceable. He reported the claims of the patent were invalid in that they were anticipated by two abstracts of Civin articles published in 1982 and by a 1981 article by Young et al. Bloomberg also reported the claimed invention of the '680 patent was obvious in view of the Young article. Finally, Bloomberg reported that a statement Civin's counsel made during prosecution of the patent as to why the abstracts were not enabling appeared to be at odds with a statement in the specifications and, therefore, the patent was unenforceable because of the attorney's inequitable conduct.

Bloomberg's letter does not mention the burden of proof an alleged infringer must meet to establish the invalidity or unenforceability of a patent. Nor does it include an infringement analysis. When asked on cross-examination whether he ever discussed the issue of infringement of the '680 patent with Bloomberg, Kiley testified under oath: "Only to the extent that we understood that we would not be receiving [an] opinion as to infringement."

Kiley offered the following testimony on this written opinion.

> Q. And what were your conclusions after having received and reviewed the written opinion?
> A. Well, the effect of the opinion was to confirm my own views that had been expressed previously, if anything strengthened them because of the additional detail because of Dr. -- or rather Mr. Bloomberg had found prior art that had not been considered by the Patent Office in the form of the Young reference.
> And that he had been able to demonstrate that the Young reference had been known to Dr. Civin, but not produced at the Patent Office.
> Q. And did you report your conclusions concerning validity and enforceability to the CellPro management and the CellPro Board?
> A. Yes, at that self same meeting.
> Q. And did the CellPro Board rely on this written opinion?
> A: To all outward appearances, yes.

At the trial, plaintiffs' counsel offered evidence showing CellPro's founders used this opinion to induce investors to commit an additional $7.5 million to the company.

In October 1990, the Patent Office issued Civin's '204 patent claiming all monoclonal antibodies that specifically bind to the CD34 antigen. In the Spring of 1991, CellPro's Board asked Bloomberg for an opinion on the '204 patent. Bloomberg

apparently prepared a draft opinion and submitted it to Kiley, who reviewed and commented on it to Bloomberg. Kiley testified he could not recall whether he also made suggested changes to the draft opinion.

Bloomberg delivered the second opinion letter to Porter and Lacob in April 1991. In this letter, he reported his firm's conclusion that the '204 patent was also invalid and unenforceable. Bloomberg restated his opinion that the claims of the patent were anticipated by the Civin abstracts. He also reported that the claims were obvious in light of prior art publications by Price, et al.; by Young and Hwang-Chen; and were obvious in light of the combination of the work of Tindle et al. and Katz, and by the combination of Price, an article by Koeffler, the Civin abstracts, and an article by Nadler. In addition, Bloomberg suggested the patents may be unenforceable due to inequitable conduct attributable to Civin. Bloomberg also reported his conclusion that CellPro does not infringe claims 2, 3, 5, and 6 of the '204 patent. He did not offer an opinion as to whether CellPro infringed claims 1 and 4 of the patent.

As to this second letter, Kiley testified the Board relied on the opinion and that he "regarded this as a substantial infusion of further arrows in our quiver."

At the time it received this opinion, CellPro planned a product launch within five years and was projecting sales in excess of $600 million. In September 1991, CellPro completed an initial public offering and raised $36 million. In the prospectus prepared in connection with that public offering, the company reported: "Based on the advice of Lyon

& Lyon, special patent counsel to the company, CellPro believes the . . . patents are invalid and unenforceable."

By December, CellPro set aside $3 million as a reserve for litigation with Baxter on the patents and was projecting $1.6 billion in sales over the next 8 years. One "scenario" reported in CellPro's financial forecasts would be to fight Civin, lose, and pay a "stiff royalty" of 15%. The financial plans made no mention of a risk of exemplary or punitive damages. Apparently, the Board and management had concluded they could look to the Lyon & Lyon opinions as a basis for avoiding any trebling of the plaintiffs' actual damages.

At the trial, plaintiffs offered evidence to show that once in litigation, CellPro did not base its defense on the theories set out in the Lyon & Lyon opinions. CellPro asserted and then dropped anticipation as an affirmative defense. It argued obviousness, but failed to offer any expert testimony in support of the defense. CellPro did not even put the Young article in evidence, much less offer evidence to show how it would render the claims of the patents obvious. Plaintiffs noted for the jury that CellPro's primary defense had been lack of enablement, a defense that seemed to be inconsistent with Kiley's testimony on his initial view on obviousness, and a defense that the court rejected by granting plaintiffs a judgment as a matter of law.

Plaintiffs argued Kiley knew these opinions were not based on an adequate foundation, that Lyon & Lyon had not given CellPro truly independent opinions, and that

the jury should conclude that CellPro did not rely on the opinions in good faith.

C. Summary of Evidence on Damages

With regard to damages, plaintiffs offered evidence at the trial showing CellPro had just received FDA approval to sell their products commercially. CellPro's total sales prior to that approval were $19,381,405. They offered testimony from Professor Jerry Hausman, an economist at MIT, on a reasonable royalty. Hausman testified in support of a royalty in the range of 8 to 10%, with an up-front payment ranging from $750,000 to $1,000,000. Plaintiffs argued that at a 10% running royalty and with a $1,000,000 payment up front, the total damages would be $2,320,493.

CellPro called Kiley to testify on a reasonable royalty. He testified a reasonable royalty would include an up-front payment of $287,000, credited against future royalties calculated at 4% percent, for a total due of $949,000.

D. Jury Instructions and The Jury's Verdict

At the close of the evidence, the court submitted the questions of damages and willful infringement to the jury. The court's instructions on willful infringement were as follows:

5. WILLFUL INFRINGEMENT

5.1 INTRODUCTION

> The second question for you to decide is whether plaintiffs have proven, by clear and convincing evidence, that defendant's infringement was willful. Certain additional remedies are available to a patent owner where infringement of a patent is found to be willful.

Infringement becomes willful when, upon consideration of all the facts and circumstances clear and convincing evidence establishes that the infringer acted in disregard of the patent; i.e., that the infringer had no reasonable basis for believing it had a right to engage in the infringing acts.

Thus, plaintiffs must prove, by clear and convincing evidence, each of the following:

1. That the infringer was aware of the patent;
2. That the infringer had no reasonable basis for believing that the patent claim at issue was invalid or not infringed or unenforceable.

   This second element focuses on the infringer's state of mind. Factors which may be helpful in evaluating the infringer's state of mind include the following:

   a. That the infringer knew of the patent;
   b. That the infringer continued to use the patented inventions after learning of the patents, rather than attempting to find an alternative approach that did not require use of the inventions;
   c. Whether, promptly after becoming aware of the patent, the infringer sought, obtained and justifiably relied on competent legal advice from counsel on whether the patent was invalid or not infringed before proceeding further with infringing activities.

5.2 GOOD FAITH RELIANCE ON OPINION OF COUNSEL

The mere fact that an infringer obtained some opinion from an attorney is not enough. In evaluating a defense of reliance on advice of counsel, you should evaluate the good faith of the infringer and the opinion relied upon. Factors which may shed light on the good faith of the infringer include when the client sought advice from counsel (before or after commencing infringing activities), the infringer's knowledge of the skill, independence and competence of the attorney rendering the opinion of counsel, and the infringer's knowledge of the extent of the analysis performed by the attorney.

In considering the defense of good faith reliance on an opinion of counsel, you may consider the knowledge and experience of the person or persons acting on behalf of the client with respect to patent matters. Whether it was reasonable to rely upon an opinion of counsel may depend on whether the client is itself knowledgeable and sophisticated about patent matters or instead is ignorant and unsophisticated in patent matters. You may also consider whether the infringer

in fact did rely on the defenses asserted in the opinion, or whether it later took positions inconsistent with the statements made in the opinion.

5.3 PATENT DEFENSES ASSERTED IN OPINION

When considering whether CellPro reasonably and in good faith relied on an opinion regarding validity or enforceability of the patents, you will need to understand the legal standards by which patents are evaluated.

Once a patent has been granted by the United States Patent Office, the patent is presumed to be valid. Accordingly, the defendant has the burden of proving that the patent is invalid by clear and convincing evidence. Clear and convincing evidence is evidence that produces an abiding conviction that the truth of a factual contention is highly probable. Proof by clear and convincing evidence is thus a higher burden than proof by a preponderance of the evidence.

The opinion letters on which CellPro says it relied raised three theories regarding patent validity or enforceability. First, the opinions asserted that the patents were invalid on grounds of anticipation. Second, the opinions asserted that the inventions described in the patents were obvious to persons skilled in the relevant prior art. Third, they asserted that the patents were unenforceable on the theory that the patent owner (Johns Hopkins) engaged in inequitable conduct in the prosecution of the patents before the United States Patent and Trademark Office. I will explain each of these theories in a moment, but first I will remind you that it is not your job to decide whether the patents are valid or enforceable. The only purpose for which you may consider the legal standards regarding patent validity are in order to determine whether CellPro could reasonably and in good faith rely on the opinions to conclude that it had a right to engage in the infringing acts.

Turning now to the three theories set forth in the opinion letters:

A. Anticipation

The first theory set forth in the opinion letters is "anticipation." When a patent application is received at the Patent and Trademark Office, it is assigned to an examiner, who examines the application, including the claims, to ascertain whether the application complies with the requirements of the U.S. Patent Laws. The examiner reviews files of prior work of others in the form of voluminous files of patents and publications. This type of material is called "prior art." Documents found in the search of prior art are called "references."

In order to prove anticipation of an invention, it is necessary that each of the

elements of a patented invention, as expressed in the claims of the patent in suit, be found in a single prior art reference.

B. Obviousness

The second theory of invalidity set forth in the opinion letters is "obviousness." In order to be patentable, an invention must not be obvious to a person of ordinary skill in the art at the time the invention was made.

In determining obviousness or non-obviousness of the claimed subject matter of each of the patents in suit, a court would have to determine the scope and content of the prior art relied upon by the party alleging invalidity of the patent; identify the difference, if any, between each claim of the patent in suit and the prior art; and determine the level of ordinary skill in the pertinent art at the time the invention was made.

The court would also have to consider such objective considerations as whether the invention has achieved commercial success, whether it satisfied a long-felt but unresolved need, whether others had previously failed to solve the same problem, whether others have copied the patented invention, whether others have demonstrated their acquiescence in the validity of the patent by taking licenses under it or in other ways, whether any unexpected results were achieved by the invention, whether the invention has been praised by others in the field, and whether the same or similar inventions were made independently by others prior to or at about the same time as the invention of the patent.

To establish a defense of obviousness, an infringer would in addition have to prove, by clear and convincing evidence, that the information disclosed in the prior art would be sufficient to enable a person skilled in the art to make and use the patented product.

C. Inequitable Conduct

The third defense asserted in the opinions is that the patents are unenforceable on the ground that the patent owner engaged in "inequitable conduct" before the Patent Office at the time the Patent Office was considering the Civin patent applications. To prove inequitable conduct, an infringer must show, by clear and convincing evidence, that the applicant (1) intended to deceive the Patent Office by (2) deliberately withholding or misrepresenting information that was material to the examiner's evaluation of the patent application.

Information is not regarded as material unless there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to

allow the application to issue as a patent.

> When an examiner has prior art at hand, it is presumed that he or she has read and understood it. Further, arguments made by the applicant's attorney as to the significance of art placed before the examiner do not constitute material misstatements of fact.
>
> To establish unenforceability of a patent based upon inequitable conduct, the infringer has the burden to prove, by clear and convincing evidence, not only that the information withheld was material, but also that the applicant actually and specifically intended to deceive the Patent Office. Proof that material information was withheld, even through gross negligence, is not enough. If withholding or misrepresentation occurred through negligence, oversight, carelessness or a mistaken judgment, then there was no intent to deceive the Patent Office and no inequitable conduct.

On March 11, 1997, the jury returned with verdicts finding plaintiffs had proven damages in the amount of $2,320,493 and CellPro had willfully infringed the '204 and '680 patents.

E. Plaintiffs' Motion for Enhancement of Damages

On April 8, 1997, plaintiffs moved for enhancement of damages pursuant to 35 U.S.C. § 284, seeking an order entering a judgment for three times the damages as determined by the jury.

In the briefing in support of their motion, plaintiffs argue CellPro had no reasonable, good-faith basis to believe that the patents were invalid, unenforceable or not infringed and that there are no mitigating circumstances that would warrant anything less than the maximum enhancement of damages permitted under the statute.

II. DISCUSSION

Section 284 of Title 35 provides that in patent infringement cases tried to a jury, a

trial court may order that a judgment be entered in favor of a claimant for up to three times the compensatory damages as determined by the jury. While the statute does not set out the standards the trial court should apply in deciding whether or not to increase damages, the Court of Appeals for the Federal Circuit has approved such awards where the fact finder has determined an infringer acted in wanton disregard of the patentee's rights. Mathis v. Spears, 857 F.2d 749, 754 (Fed. Cir. 1988) ("Provisions for increased damages . . . are available as deterrents to blatant, blind, willful infringement of valid patents.").

Whether an infringer acted willfully or wantonly is a question of fact that rests on a determination of the infringer's state of mind. Read Corp. v. Portec, Inc., 970 F.2d 816, 828 (Fed. Cir. 1992). Published opinions have identified a number of factors that may be relevant to determining the infringer's state of mind, including evidence that the infringer copied the ideas or design, evidence that the infringer had actual notice of the patent, and evidence that the infringer sought, obtained, and justifiably relied on legal advice from counsel on whether or not the claims of the patents were valid or infringed. Id. at 826-27 (citing cases). In determining whether or not an infringer's reliance on an opinion of counsel was reasonable, courts have found it relevant to look to when the infringer sought counsel's advice (before or after commencing the infringing activities); the infringer's knowledge of the attorney's independence, skill, and competence; the infringer's knowledge of the nature and extent of analysis performed by counsel in providing the

opinion; and whether the opinion contains sufficient internal indicia of credibility, including a validity analysis predicated on a review of the file histories, and an infringement analysis that compares and contrasts the potentially infringing method or apparatus with the patented inventions. See, e.g., Underwater Devices, Inc. v. Morrison-Knudsen Co., Inc., 717 F.2d 1380, 1389-90 (Fed. Cir. 1983).

In this case, the jury as fact finder has made the predicate determination that CellPro's infringement was willful. That is, the jury has found CellPro had no reasonable basis for believing it had a right to engage in the infringing acts. Read Corp. v. Portec, Inc., 970 F.2d 816, 825 (Fed. Cir. 1992). That finding establishes that CellPro has engaged in conduct that may warrant an increase in damages. Id. With that predicate finding, this court must then determine whether CellPro should be sanctioned by entering a judgment for more than the plaintiffs' actual damages. State Indus., Inc. v. Mor-Flo Indus., Inc., 948 F.2d 1573, 1576 (Fed. Cir. 1991). If the court finds it appropriate to punish CellPro, the court must then determine the degree of the penalty, which can range up to three times the actual damages. Jurgens v. CBK, Ltd., 80 F.3d 1566 (Fed. Cir. 1996).

A. Should CellPro be Punished for Its Willful Infringement With a Judgment for More than the Plaintiffs' Actual Damages?

Unfortunately, five years of effort to bring this matter to a resolution have left the plaintiffs with too many examples of conduct by and on behalf of CellPro that

sanction of approximately $4.6 million.

This sanction under § 284 is intended to punish a party for its willful or bad faith infringement. In determining the extent of the sanction, the court should consider factors that render an infringer's conduct more culpable, as well as factors that are mitigating or ameliorating. Rite-Hite Corp. v. Kelley Co., 819 F.2d 1120, 1126 (Fed. Cir. 1987).

In Read v. Portec, 970 F.2d 816, 827 (Fed. Cir. 1992), the Federal Circuit listed examples of relevant factors the court should consider, including factors that focus on the nature and duration of the infringing conduct, the infringer's financial resources, and the infringer's conduct during the litigation. That court recently noted in Jurgens v. CBK, Ltd., 80 F.3d 1566, 1570 (Fed. Cir. 1996), that a sanction under § 284 should address the infringing conduct. While an infringer's bad faith and misconduct during the litigation may be relevant factors to consider in determining the extent of the sanction, that conduct during the litigation may breach other duties owed the plaintiff and the court. This court has other tools available to punish that misconduct, including an award of fees under 35 U.S.C. § 285 and an impositons of sanctions on a party or counsel under 28 U.S.C. § 1927 and Fed. R. Civ. P. 11.

Plaintiffs have filed a separate motion pursuant to 35 U.S.C. § 285 and 28 U.S.C. § 1927 for an award of more than $5 million in fees and $1.5 million in expenses incurred to date. The court expects to address that motion and other issues in a separate decision, perhaps after the Court of Appeals has had an opportunity to review this matter on appeal.

In support of their motion for a maximum enhancement of the damages award, plaintiffs offer arguments addressed to each of the nine factors identified in Read v. Portec, 970 F.2d 816, 827 (Fed. Cir. 1992). Most of the arguments are based on facts offered into evidence at the trial. Certain other arguments are based on facts that are otherwise of record in the case. They argue as follows:

1. Deliberate Copying

Plaintiffs argue the evidence at the trial established that CellPro's founders proceeded to form CellPro for the express purpose of developing a product to produce highly-purified stem cell suspensions using a CD34 antibody, an activity they knew infringed the '680 patent. Further, after the issuance of the '204 patent, they continued to base CellPro's product development efforts on the 12.8 antibody, which they knew to be a CD34 antibody. Plaintiffs argue this evidence shows CellPro's infringement was neither accidental nor inadvertent and that CellPro knowingly appropriated the patented technology for its own use.

The court agrees with plaintiffs. These and other facts establish CellPro deliberately infringed the patents. Without some proof that CellPro had formed a good-faith belief the patents were invalid or unenforceable, this deliberate infringement should be punished by a substantial increase in damages.

2. Good-Faith Belief the Patents Were Invalid

Plaintiffs argue that CellPro never had a good faith belief the patents were invalid.

As evidence of this, they note CellPro unreasonably delayed in seeking opinions of counsel, the opinions it did receive were not competent, and that the evidence at trial and in the record shows CellPro could not and did not rely on them in good faith.

There is very little evidence to suggest CellPro, its officers, directors, or counsel ever had a good-faith belief the Civin patents were invalid. While CellPro offered the opinions of counsel as evidence of their good faith, the nature and timing of the opinions suggest CellPro had not legitimately sought out counsel for advice. The opinions were not prepared at a time when the CellPro Board was considering whether to proceed with the apparently infringing work. Rather, the opinions were prepared after those business decisions had been made. The opinions appear to have been prepared for two other reasons: to assist CellPro in raising funds and to immunize the company from a claim for enhanced damages.

The opinions themselves are a weak pass at the quality of work one might expect from independent counsel. The opinions are shallow. For example, they fail to speak to the substantial burden of proof CellPro would face when it took on the task of trying to show the Civin patents were invalid. One would expect most prudent business people would be interested in that subject when exercising their fiduciary duties in putting investors' funds at risk. In addition, not one of the three prior art references cited in the February 27, 1990 opinion as anticipating the '680 patent on cell suspensions even refers to a cell suspension. While this deficiency might not have been obvious to the investors

or others on the Board, it should have been obvious to Kiley.

The evidence with regard to how the opinions were prepared and how they were provided to the client suggests the CellPro Board did not in fact rely on them. Kiley testified, for example, that he reviewed and revised a draft opinion before counsel delivered it and that the opinions confirmed his views of the patent. Further, Kiley's testimony as to why CellPro had not asked for an infringement analysis was not credible.

The Federal Circuit noted in Read v. Portec, 970 F.2d 816, 828-29 (Fed. Cir. 1992), that a good test for assessing whether an opinion of counsel was genuine and not merely self-serving is whether the asserted defenses were backed up at trial with viable proof that raised substantial questions. In this case, CellPro's defense bore little resemblance to the opinions trial counsel had previously given the Board. Allegedly critical elements of prior art identified in the opinions, such as the Young reference (an additional arrow "infused" in Kiley's quiver), were not even mentioned in CellPro's presentation of its defenses. While counsel opined in each letter that the patents were invalid as obvious, at trial they failed to call any expert witness to offer testimony in support of that defense.

The opinion of counsel CellPro allegedly relied on concluded the patents were invalid as anticipated by certain prior art. That opinion necessarily rested on the view that the prior art was enabling. At trial, CellPro and that counsel abandoned anticipation as a defense and instead reversed course and argued lack of enablement as a principal defense.

Ultimately, this court rejected that lack of enablement defense as a matter of law.

These facts suggest CellPro's deliberate infringement was not based on a good-faith belief the patents were invalid. On the contrary, these facts suggest CellPro deliberately infringed the patents in bad faith. This intentional breach of duties owed to the plaintiffs should be punished by a substantial increase in the damage award.

3. CellPro's Behavior in the Litigation

Another factor relevant to determining whether an infringer acted in such bad faith as to merit an increase in damages, is the infringer's behavior as a party to the litigation. Civil litigation can be a joint effort by the court and parties to secure a just, speedy, and inexpensive determination of commercial disputes. Unfortunately, for the determined wrongdoer, it can be a weapon used to attack and punish a competitor in an aggressive commercial battle.

In this case, the venture capitalists who formed CellPro included this litigation in their initial business plan, or, as they described it, their "scenario." They set aside $3 million for the fight. They hired counsel and bought opinions that the patents were invalid. They used those opinions to raise more money, later reserving over $7 million for this litigation.

In April 1992, they started the battle by filing an action in the United States District Court in Seattle, seeking a declaration CellPro did not infringe the patents, at a time when they well knew they were infringing them.

In this action they have raised issues and arguments that have no real basis in fact. For example, while they have repeatedly told the FDA, the medical, scientific, and financial communities that their 12.8 antibody binds to the CD34 antigen, they denied this fact in court. They raised and abandoned defenses without any respect for whether they were consistent with the law or facts, including defenses of anticipation, obviousness, and lack of enablement.

They seemed to have an inexhaustible list of potential expert witnesses they would call on to offer proposed opinions, only to withdraw or abandon them once they had been deposed (and the weakness of their proposed testimony had been exposed). This included Robert Sutherland's testimony on the lack of enablement of the claims of the '204 patent, Paul Simmons and William Henderson's testimony that the 12.8 antibody binds to an antigen on mature basophils, and Ellen Vitetta's testimony that the 12.8 antibody binds to platelets.

In 1996, they offered the testimony of Gustav Gaudernack that it would be "vague and inaccurate to speak of 'the' CD34 antigen." That testimony fell flat when Dr. Gauderack was confronted with his own prior publications where he referred to "the" CD34 antigen and by his 1994 agreement with CellPro where he licensed a CD34 antibody to CellPro.

An additional fact plaintiffs cite in their briefing on this issue is that in 1995, CellPro's counsel attempted to and did establish an inappropriate relationship with the

court's courtroom deputy, including having ex parte communications with her in the evenings after the trial day had concluded, inviting her to visit California, and having Lyon and Lyon's litigation team take her out to dinner during the trial. As previously noted, the court has a number of tools available to punish misconduct and expects to speak to this issue in another context. While this type of conduct may be relevant to assessing CellPro's (or its counsel's) bad faith, the court will not consider it in determining the damages to be paid plaintiff under 35 U.S.C. § 284.

CellPro deliberately infringed the patents in bad faith and has used this litigation to frustrate plaintiffs and as an opportunity to throw up baseless arguments and defenses to avoid liability. These facts suggest CellPro should be punished with a substantial increase in damages to be paid to plaintiffs.

4. Infringer's Size and Financial Condition

An additional factor the court should consider in determining the extent to which damages should be increased is the size of the infringer's business and its financial condition. Punishing a larger company in a stronger financial condition may call for higher damages, where a lower number may be equally effective in punishing a smaller company.

CellPro is a relatively small company when compared to the plaintiffs, but it has substantial resources. It has raised over $160 million in two public offerings and as of December 31, 1996, it had $60 million available in cash and marketable securities. It can

afford to pay $4.6 million in enhanced damages.

5. Closeness of the Case

Another factor the court should consider in weighing an increase in damages is the closeness of the case on willfulness. See, e.g., Modine Mfg. Co. v. The Allen Group, Inc., 917 F.2d 538, 543 (Fed. Cir. 1990). A close case might suggest the court should not impose substantial damages. A strong case of willful infringement suggests the court should impose more substantial damages.

This was not a close case. Plaintiffs put on strong and convincing evidence to establish CellPro's willful infringement. CellPro's defense of good faith reliance on the advice of counsel, was so weak, so transparently put together in a cynical effort to avoid liability, that it only served to highlight CellPro's misconduct.

This factor also suggests the court should substantially increase the damage award.

6. Duration of the Infringement, Remedial Action, Attempts to Conceal

In Read v. Portec, 970 F.2d 816, 827 (Fed. Cir. 1992), the Federal Circuit identified three other factors that may be relevant to the decision on the extent to which damages should be enhanced, including the duration of the misconduct, any remedial action by the infringer, and evidence the infringer sought to conceal its misconduct. These factors do not appear to be particularly relevant here. CellPro has not argued it has only infringed for a short time or that it identified the infringement and took remedial action to avoid further liability. The court does not find CellPro sought to conceal its

III. CONCLUSION

Unfortunately, we missed the mark in working to bring this matter to a just, speedy and inexpensive determination. The court will take one step in the right direction, however, by granting plaintiffs' motion for enhancement of damages and entering an order trebling the damages as awarded by the jury. That award is the maximum allowable under 35 U.S.C. § 284 and is an appropriate amount to punish CellPro for its deliberate and bad-faith infringement of the Civin patents.