

that Section 455(b) specifically addresses an issue.⁵ For reasons already explained, the combination of bases relied upon by plaintiffs is no stronger in the aggregate than each considered individually. Accordingly, plaintiffs' motion would present no controlling question of law as to which there is substantial ground for difference of opinion even if the waiver were disregarded.

■ Nor would an interlocutory appeal here be likely materially to advance the ultimate termination of the litigation. The principal (although not all of the) issues presented by this case, including the recusal issue, are substantially common to it and to *Faulkner*. Direct appeals already are pending in some of the cases decided under the *Faulkner* caption. The disposition of those issues on the direct appeals are likely to be dispositive of the identical and similar issues here. An interlocutory appeal in this case would accelerate nothing.

The same considerations would lead the Court to deny certification even if there were a controlling issue of law on which there is substantial ground for difference of opinion and even if an immediate appeal would advance the ultimate disposition of *this* lawsuit. The Court of Appeals will resolve the issues plaintiffs tender in deciding the *Faulkner* appeals. There simply is no practical need for an interlocutory appeal in this case, which would serve only to burden the Court of Appeals further for no good reason.

Accordingly, the plaintiffs' motion for certification under 28 U.S.C. § 1292(b) is denied.

SO ORDERED.

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AFFYMETRIX, INC., Plaintiff,

y.

PE CORPORATION (N.Y.); Competitive Technologies, Inc.; Applera Corporation; Perseptive Biosystems, Inc., Defendants.

No. 01 Civ. 0634(NRB).

United States District Court,
S.D. New York.

Jan. 28, 2004.

[REDACTED]

[REDACTED]

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5. *Liteky v. United States*, 510 U.S. 540, 552–

53, 114 S.Ct. 1147, 127 L.Ed.2d 474 (1994).

[REDACTED]

[REDACTED]

[REDACTED]

Robert J. Koch, Milbank, Tweed, Hadley & McCloy LLP, Washington, DC, Ralph C. Dawson, Fulbright & Jaworski, LLP, New York, NY, for Plaintiff.

David Kalow, Kalow & Springut LLP, New York NY, Matthew Powers, Weil Gotshal & Manges LLP, Redwood Shores, CA, for Defendant.

MEMORANDUM AND ORDER

BUCHWALD, District Judge.

This case arises from a complaint by Affymetrix, Inc. ("plaintiff") seeking *inter alia* a declaratory judgment against PE Corporation (New York), Competitive Technologies, Inc., Applera Corporation, and Perseptive Biosystems, Inc. (collectively "defendants") that five patents owned by defendant Competitive Technologies are unenforceable, invalid, and not infringed. The patents at issue are United States Patent Numbers 4,458,066 ("patent '066"), 4,500,707 ("patent '707"), 5,132,418 ("the '418 patent"), 5,153,319 ("patent '319") and 4,973,679 ("patent '679"). Now pending are plaintiff's separate motions for summary judgment on the issues of: 1) whether defendants engaged in inequitable conduct during their prosecution of all five patents in suit; 2) whether certain claims of the '066 and '418 patents were anticipated by an article entitled "The Synthesis of Oligodeoxypyrimides on a Polymer Support" ("the 1980 article"), published in the United Kingdom publication *Tetrahedron Letters*; and 3) whether the '679 patent fails to meet the requirements of 35 U.S.C. §§ 101 and 112. For the reasons set forth below, plaintiff's motion is granted in part and denied in part.

BACKGROUND

A. Defendants' prosecution of the patents at issue

This lawsuit involves two families of patents, for which Professor Marvin Caruthers is the common inventor. Caruthers co-invented the first line ("the C & M line"), of which patents '066, '707, '418 and '319 are at issue, with Dr. Mark Matteucci, and the second line ("the C & B line"), of which only patent '679 is at issue, with Dr. Serge Beaucage. Both inventions were developed in a laboratory at the University of Colorado, which had a contract with University Patents, Inc. (UPI),¹ to patent its inventions. Both inventions describe processes for producing polynucleotides, which are fragments of DNA used mainly for lab research.

On February 19, 1980, Caruthers and Matteucci published an article entitled "The Synthesis of Oligodeoxypyrimides on a Polymer Support" ("the 1980 article") in the United Kingdom publication *Tetrahedron Letters*. Ten days later, and only two weeks after UPI was first notified of the invention, see A186,² UPI filed a 14-page patent application, Serial No. 126-025 ("the parent application"), which was prepared by UPI's regular outside counsel at the time, Donald Margolis. Mr Margolis testified at his deposition that the amount of time he was given to prepare the application was "absolutely bare bones minimum," A347-48, and that he basically copied straight from the article without adding any new information, A352-53. He further testified that it was

his understanding that he was put on such a tight schedule because "a publication was imminent," and publication prior to filing would jeopardize UPI's filing rights in countries that, unlike the United States, do not provide a grace period for filing after publication. A353-54. (It was only after filing that Margolis learned that the article had already been published on February 19, 1980.)

Subsequently, after UPI had begun licensing the invention to Genetic Systems (a predecessor to defendant Applera) in June, 1981, UPI hired the patent law firm Scully, Scott, Murphy & Pressey ("the Scully firm") to prepare a continuation-in-part application (CIP).³ Dr. Scully, who unlike Margolis holds a Ph.D. in organic chemistry, prepared a 58 page CIP, which UPI filed on March 24, 1981, over one year after the publication of the 1980 article. This CIP issued as patent '066 on July 3, 1984. What is significant to this case is that, among other changes, patent '066 used broader language than the parent application to describe the support structure on which the polynucleotides were to be synthesized and the "protecting group" used to cover the reactive sites of certain compounds involved in the synthesis, thereby preventing unwanted reactions from occurring at these sites. See Part II. Three days after filing the CIP, on March 27, 1981, UPI filed the first application in the C & B line of patents, patent '732, which described an improvement over the chemistry developed by Caruthers and Matteucci and which ultimately developed into the fifth patent at issue in this case, patent '679.⁴ UPI did not disclose the

1. UPI later became Competitive Technologies, which is a named defendant in this litigation.

2. Citations to "A" refer to plaintiff's Appendix of Exhibits in support of its motions. Citations to "D" refer to defendants' Appendix of Exhibits in support of their opposition.

3. "A [CIP] application is an application that has some subject matter in common with the

parent but also has some new subject matter. A[CIP] is entitled to the parent's filing date as to any subject matter in common but only to its own filing date as to the new matter." Herbert F. Schwartz, *Patent Law and Practice* 25 (3d ed.2001).

4. Patent '679 issued on November 27, 1990.

1980 article to the prosecuting examiner for either of these applications.

During roughly the same time period, UPI was also applying to the European Patent Office (EPO) for patent protection for the C & M line. UPI filed an application with the EPO on February 27, 1981. The application was initially handled by the Scully firm and later by in-house counsel George Yahwak. UPI did not disclose the 1980 Article to the EPO, even though it was an absolute bar to any claims disclosed in the article. After a third party informed the EPO of the article in a letter dated March 25, 1983, the EPO issued a notice of deficiency, dated November 12, 1983, which stated that the 1980 article destroyed the novelty of claims 1-24, 27, 29 and 30 of the application. A277. (The numbering and contents of these claims are identical to those of the claims that ultimately issued in the '066 patent.) In response, UPI narrowed its application to the EPO to an aspect not disclosed in the 1980 article, *i.e.*, the use of the nucleotide guanine. A288.

On March 16, 1982, UPI filed a CIP of its '066 application which eventually issued as patent '707.⁵ On September 17, 1982, after the prosecuting examiner had allowed claims 18-42 of UPI's '066 application, Dr. Kelvin K. Ogilvie declared an "interference" (a contest over priority between overlapping claims of rival applications). The overlap was described in the following broadly-worded "count" (or commonly-claimed subject matter): "A process for producing polynucleotides which comprises the step of condensing the 3'-OH or 5'-OH of a nucleoside linked to a functionalized inorganic polymer with a compound which is the reactive product of a nucleo-

side and a blocked phosphodichloridite." A225. As a preliminary matter, for purposes of determining which party of the two was entitled to senior party status,⁶ the patent office found on September 17, 1982 that UPI's challenged claim was entitled to the priority date of the parent application. A224.

On April 7, 1983, UPI filed a motion to dissolve the interference and enclosed the 1980 article as proof of its prior possession, stating that the article "meets every material element and limitation of [the interference count]." A235. Five days later, Ogilvie abandoned the interference, and shortly thereafter UPI withdrew its motion, the interference examiner terminated the interference, and UPI's application was transferred back to the prosecution examiner. Sometime thereafter, in-house counsel Yahwak assumed partial and eventually complete control over the prosecution of the patents at issue.

UPI subsequently filed two more applications at issue in this case: patent '418, filed on June 18, 1984 and issued on July 21, 1992, and patent '319, filed on March 31, 1986 and issued on October 6, 1992. In the eleven years from UPI's filing of patent '066 in 1981 to the issuance of patents '418 and '319 in 1992, other than during the Ogilvie interference and during another interference in 1998, UPI disclosed the 1980 article to the prosecution examiner only once in 1985 and once in 1986. On December 10, 1985, on page six of a 19 page submission requesting an amendment after the rejection of certain claims, UPI wrote "[s]ince Applicant's first report in Tetrahedron Letters, February 1980) of the process described in the pres-

5. Patent '707 issued on February 19, 1985.

6. The senior party in an interference is presumed to have invented the claim first. Throughout the proceeding, the junior party

has the burden of establishing priority by a preponderance of the evidence. John Gladstone Mills III et al., *Patent Law Fundamentals* §§ 11:13 and 11:44 (2d Ed.2003).

ent application, the process has become accepted by industry...." D0250. Shortly thereafter, on February 1986, in the remarks section of a proposed amendment after allowance,⁷ UPI expressed their "wish to bring to the Examiner's attention their initial publication regarding the present invention," neglecting however to include a publication date with the reference. D0243. Yahwak, who at this point was in charge of prosecuting the patents at issue, testified that he did so to avoid any question of inequitable conduct, as by this time UPI was in litigation with other parties who were alleging that UPI had concealed the 1980 article. Yahwak Dec. ¶ 9.

B. Circumstances giving rise to the current litigation

In September of 1997, Affymetrix entered into a written Purchase Agreement ("the Agreement") with defendant PerSeptive⁸ in which PerSeptive agreed to sell a certain amount of custom amidite products to Affymetrix during each year of the Agreement until December 31, 2005. Under the Agreement, PerSeptive represented that at the time of contracting, PerSeptive knew of no reason that Affymetrix could not use the delivered amidite products to manufacture oligonucleotides using any method contained in the '069 patent. The Agreement further provided that "[i]f for any reason PerSeptive is not able to make or have made the amidites" for a period exceeding 60 days, PerSeptive was to negotiate in good faith with Affymetrix for licensing rights to the '069 patent. Further, PerSeptive represented that at the time of the sale, it knew of no violations of any patents or other intellectual property rights that would prevent Affym-

etrix from so using the amidite products. PerSeptive was also obligated under the Agreement to indemnify and defend Affymetrix from infringement claims based on use of the amidite products in accordance with the '069 patent.

Affymetrix received shipments of amidite products from PerSeptive until April 15, 1998. Sometime after this date, Affymetrix was notified by representatives of PerSeptive that PerSeptive did not intend to fill the orders. Subsequently, in August of 1999, a representative of PerSeptive's parent company, PE, indicated to Affymetrix that a PE affiliate intended to assert a claim that Affymetrix's use of the amidite products to synthesize DNA infringed PE's process patents. Affymetrix notified PerSeptive of PE's patent infringement allegations.

Applera, as licensees, along with defendant Competitive Technologies (formerly UPI), sued Affymetrix in early July of 2000 in the District Court of Delaware alleging infringement of five patents at issue here. PerSeptive and PE failed to fulfil the indemnification clause of PerSeptive's contract with Affymetrix by taking up Affymetrix's defense. The Delaware action was dismissed on September 27, 2001 for lack of subject matter jurisdiction after plaintiff had filed suit in the Southern District of New York in January of 2001.

According to Affymetrix's Amended Complaint, PE purports to have sole and exclusive rights to enforce the patents in suit and Competitive Technologies purports to hold title to each of the patents in suit.

7. The PTO had apparently, by this point, allowed the application for patent '418 in its entirety. UPI made this submission seeking to specifically identify the inorganic polymer support claimed therein as silica gel or inorganic silica.

8. PerSeptive is a wholly owned subsidiary of defendant PE Corp. (N.Y.) ("PE"), which in turn is a wholly owned subsidiary of defendant Applera Corp ("Applera"). Applera is the licensee of the patents at issue.

C. Procedural History

In its Amended Complaint, Affymetrix asserts five causes of action. In Count One, against PE and Competitive Technologies only, Affymetrix seeks a declaratory judgment that (1) it has not infringed the patents in suit; (2) the patents in suit are invalid for failing to satisfy the requirements set forth in 35 U.S.C. §§ 101, 102, 103 and/or 112 and/or under the doctrine of obviousness-type double patenting; and (3) the patents in suit are unenforceable.

In Count Two of the Amended Complaint, Affymetrix asserts a breach of contract claim against PerSeptive and PE based on breach of warranty, PerSeptive's failure to defend and indemnify Affymetrix from claims resulting from use of the amide products, and PerSeptive's failure to negotiate in good faith for licensing rights to the '069 patent as required by the Agreement.

Counts Three through Five assert a variety of unfair competition claims. In Count Three, asserted against PE and Applera, Affymetrix alleges that past legal action taken by these companies against Affymetrix and the fraudulent obtaining and licensing of patents constitute attempts to monopolize by preventing Affymetrix from competing with PE in the manufacture and sale of DNA probes and other products involving the synthesis of oligonucleotides in violation of the Sherman Act, 15 U.S.C. § 2. In Count Four, Affymetrix asserts that PE, Applera, and Competitive Technologies conspired to engage in such illegal and exclusionary conduct, in violation of the Sherman Act, 15 U.S.C. § 2, Cal. Bus. & Prof.Code §§ 16722 and 16726, and N.Y. Gen. Bus. Law § 340. Finally, Count Five asserts a cause of action against PE, Applera, and Competitive Technologies pursuant to Cal. Bus. & Prof.Code § 17200 for unfair competition.

On May 24, 2002, in an opinion reported at 219 F.Supp.2d 390, we denied defendants' motions to dismiss plaintiff's inequitable conduct claim and to dismiss certain of plaintiff's contract-based claims as non-cognizable and stay others as covered by a mandatory arbitration clause, and granted defendants' motion to stay discovery on questions arising from to plaintiff's anti-trust-related claims. On December 4, 2002, we granted plaintiff's motion for summary judgment that the '679 patent expired on March 27, 2001 in accordance with a terminal disclaimer filed by defendants during the patent's prosecution. No. 01-0634, 2002 WL 31875401.

On April 16, 2003, plaintiff moved for summary judgment on the issues of whether the claims of the patents in suit are unenforceable due to inequitable conduct, whether certain claims of the '066 and '418 patents are anticipated by the 1980 article, and whether the '679 patent is invalid under 35 U.S.C. §§ 101 and 112. We heard oral argument on these issues on December 16, 2003.

DISCUSSION

I. Summary Judgment Standard

Summary judgment is properly granted "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to material fact and that the moving party is entitled to judgment as a matter of law." *R.B. Ventures, Ltd. v. Shame*, 112 F.3d 54, 57 (2d Cir.1997) (quoting Fed.R.Civ.P. 56(c)). In reviewing the record, the district court must "view the evidence in the light most favorable to the nonmoving party" and resolve all ambiguities and "draw all reasonable inferences" in its favor. *American Casualty Co. v. Nordic Leasing, Inc.*, 42 F.3d 725, 728 (2d Cir.1994) (internal quotation omitted); see *Anderson v. Liberty*

Lobby, Inc., 477 U.S. 242, 255, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986).

The mere existence, however, of an alleged factual dispute between the parties will not defeat a motion for summary judgment because "the requirement is that there be no *genuine* issue of *material* fact." *Anderson*, 477 U.S. at 247-48, 106 S.Ct. 2505 (emphasis in original). In order to defeat such a motion, the non-moving party must affirmatively set forth facts showing that there is a genuine issue for trial. *Id.* at 256, 106 S.Ct. 2505. An issue is "genuine . . . if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." *Id.* at 248, 106 S.Ct. 2505 (internal quotation omitted); see *C.R. Bard, Inc. v. Advanced Cardiovascular Systems, Inc.*, 911 F.2d 670, 672-73 (Fed.Cir.1990).

To raise a genuine issue, a non-moving party may not "rely on mere speculation or conjecture as to the true nature of the facts." *Knight v. U.S. Fire Ins. Co.*, 804 F.2d 9, 12 (2d Cir.1986), *cert. denied*, 480 U.S. 932, 107 S.Ct. 1570, 94 L.Ed.2d 762 (1987); see also *Lipton v. Nature Co.*, 71 F.3d 464, 469 (2d Cir.1995). " 'Mere conclusory allegations or denials' in legal memoranda or oral argument are not evidence and cannot by themselves create a genuine issue of material fact where none would otherwise exist." *Quinn v. Syracuse Model Neighborhood Corp.*, 613 F.2d 438, 445 (2d Cir.1980) (citation omitted). Rather, the non-moving party must produce *specific facts* sufficient to establish the existence of a genuine issue of fact. See *Celotex Corp. v. Catrett*, 477 U.S. 317, 322-23, 106 S.Ct. 2548, 91 L.Ed.2d 265 (1986); *Lipton*, 71 F.3d at 464. "If the

evidence is merely colorable, or is not significantly probative, summary judgment may be granted." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986) (citations omitted).

Finally, summary judgment is equally appropriate in a patent case as it is in any other type of case. See *C.R. Bard, Inc. v. Advanced Cardiovascular Systems, Inc.*, 911 F.2d 670, 672 (Fed.Cir.1990).

II. Plaintiff's anticipation claim

Plaintiff has moved for summary judgment that certain claims of the '066 and '418 patents were anticipated by the 1980 article. We address this issue first because it bears on plaintiff's broader claim that defendants' failure to disclose this article during their prosecution of all five patents at issue amounted to inequitable conduct.⁹

Under Section 102(b) of Title 35 of the United States Code, a patent application fails if it is filed more than one year after the invention was described in a written publication. (A publication that thus pre-dates patent claims is called 'anticipatory.') Because defendants' CIP,¹⁰ which ultimately resulted in the '066 line of patents, was filed over one year after the 1980 article, any of its claims that were disclosed in the 1980 article were barred unless they were entitled to the February, 1980 effective filing date of defendants' parent application.

Whether or not these claims were entitled to the effective filing date of the parent application, in turn, depends on whether they were first described in the *parent* application in a manner that satisfied the requirements of 35 U.S.C. § 112,¹¹ which

faith that the article did not anticipate the CIP filed on March 16, 1982.

9. Plaintiff's anticipation claim bears on its inequitable conduct claim because whether defendants were obligated to disclose the 1980 article (such that their failure to do so amounted to inequitable conduct) turns on whether they could have believed in good

10. See *supra* note 3.

11. Under 35 U.S.C. § 120,

provides that an application must:

contain a *written description of the invention*, and of the manner and process of making and using it, in such *full, clear, concise, and exact terms* as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

35 U.S.C. § 112 (emphasis added).

■ In assessing whether defendants' parent application adequately described the relevant claims in the CIP, we are guided by the following principles drawn from Federal Circuit precedent. Although the parent application need not mirror the continuation *in haec verba*, see *Fujikawa v. Wattanasin*, 93 F.3d 1559, 1570 (Fed. Cir.1996), it must "reasonably convey[] to the artisan that the inventor had possession at that time of the later claimed subject matter," see *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 1575 (Fed.Cir.1985) (internal quotations omitted). Moreover, although the § 112 issue is a factual one, see *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1562 (Fed.Cir. 1991), it can appropriately be resolved on a summary judgment motion, see *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed.Cir.1997).

In *Lockwood*, the Federal Circuit clearly articulated how extremely demanding the § 112 requirement is:

Entitlement to a filing date does not extend to subject matter which is not disclosed, but would be obvious over what is expressly disclosed. It extends only to that which is disclosed. While the *meaning* of terms, phrases, or dia-

grams in a disclosure is to be explained or interpreted from the vantage point of one skilled in the art, all the limitations *must appear in* the specification. The question is *not* whether a claimed invention is an obvious variant of that which is disclosed in the specification. Rather, a prior application itself must describe an invention, and do so in sufficient detail that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought.

Lockwood, 107 F.3d at 1571-72 (affirming the district court's summary judgment that a continuation application was not entitled to the effective date of the parent application) (emphasis added). The court went on to hold that, although the parent application need not contain an *identical* description to that included in the continuation, the description must be "equivalent." *Id.* at 1572.

■ Applying these principles to the facts at hand, we find that defendants' parent application did not describe the relevant claims set forth in their CIP. Two aspects of the '066 line are at issue: 1) the support structure on which the polynucleotide or other substance is synthesized; and 2) the "protecting group" used to cover the reactive sites of certain compounds involved in the synthesis, thereby preventing unwanted reactions from occurring at those sites. We discuss these aspects in turn.

The parent application referred to the support structure as a silica gel, see A019, whereas the CIP referred to the structure as an "inorganic polymer" and explained that "[a] wide variety of inorganic poly-

[a]n application for patent for an invention disclosed in the manner provided by the first paragraph of section 112 of this title in an application previously filed in the United States ... which is filed by an inventor or

inventors named in the previously filed application shall have the same effect, as to such invention, as though filed on the date of the prior application, . . .

mers can be employed in the present invention and *these include, for example, silica, porous glass, aluminosilicates, borosilicates, metal oxides such as alumina and nickel oxide, and various clays,*" see A098 (emphasis added). Defendants do not dispute that the CIP description was broader than the parent description, but argue that it would have been clear to a skilled reader of the parent application that the inventors possessed "the idea of practicing their invention with whatever polymer support would work to carry out the process, consistent with the characteristics of the polymers set forth in the application." Opp. at 17. The innovation conveyed in the parent application, defendants argue, was not the mere use of silica gel, but rather the replacement of swellable supports, which had been the focus of research in the past, with rigid supports. Opp. 19-20.

Defendants' argument fails on various levels. First, the text of the parent application in no way conveyed that the inventors thought of using any support other than silica gel. On the contrary, the opening description of the field of the invention stated that "[t]he present invention relates to modified silica gel and to methods of making such modified silica gel." A019. The background section, further down, asserted that, although modified silica gels had been used in other areas, "no known use of modified silica gel in the production

of of polynucleotides is known." *Id.* The next section of the application, entitled "Brief Description of the Invention," began by stating that "[t]he present invention provides new and useful modified silica gels." A020. Moreover, the "Detailed Description" confirmed that what the invention contributed was the production and use of "unique modified silica gels." A029. In fact, the term 'modified silica gel(s)' appeared throughout the application, and at no point did defendants even imply, let alone make clear, that they envisioned using any other support in the process they described.¹²

Our conclusion that the parent application was limited to the use of silica gel, and did not cover the broader class of polymers claimed in the CIP, is supported not merely by the text, but also by the inventors' admissions at their depositions that they never experimented with other supports; never considered using other supports; and were not even sure, years later, that some of the other supports included in the CIP would work. A485-86, A487, A491, A493-94, A496-97.

Finally, even if the parent application had broadly claimed 'whatever works' as a support structure, based solely on the functions specified therein, we have serious doubts about whether patent law would have allowed such a claim. See Mills et al., *Patent Law Basics* § 14:5

12. At oral argument, when defendants were asked whether they used any language suggesting that the silica gel was merely exemplary, defendants directed our attention to the term "for example," used at A020, the statement at A021 that "[t]he following examples are set forth by way of explanation of preferred embodiments and are not intended to limit the present invention," and the sentence on A019 beginning with "One prior art technique..." However, these references are irrelevant. The A020 reference clearly qualified the specified method of *producing* the silica gel, and not the idea of using the gel to

begin with. If anything, this language supports plaintiff's position because it shows that Margolis (the lawyer who drafted the parent application) was careful to make clear when a specification was meant as an example and not as a limitation. Similarly, the language on A021 referred to "embodiments," which the previous page made clear designates the types of substances that can be ultimately *produced* and the *processes* that can be used, not to the fundamental element of the silica gel support. Finally, the A019 reference is irrelevant as it described *prior* art and not the claimed invention.

(1992) ("[A] claim—though it recites advantages or properties that are the necessary and inevitable consequence of recited physical structure—is identical in scope with any other claim which merely recites the same physical structure."); 60 Am. Jur.2d Patents § 380 ("In the absence of other claim language restricting the scope of a patent claim, the means or steps described exclusively in *functional* terms are to be construed to cover the *corresponding structures described* in the specification for performing that function and its equivalents.) (emphasis added). Indeed, defendants' permissive reading of § 112 would frustrate an important purpose of the provision, *i.e.*, to "guard[] against the inventor's overreaching by insisting that he recount his invention in [full] detail [so that a court can determine whether] his future claims . . . [were] encompassed within his original creation." *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1561 (Fed.Cir.1991) (quoting *Rengo Co. v. Molins Mach. Co.*, 657 F.2d 535, 551 (3d Cir.), *cert. denied*, 454 U.S. 1055, 102 S.Ct. 600, 70 L.Ed.2d 591 (1981)).

We therefore find that all claims in defendants' CIP based on use of an inorganic polymer support were new material not encompassed by their parent application. As such, these claims were not entitled to the effective filing date of the parent application, and they therefore were and are invalid as having been filed more than one year after they were described in the 1980 article.

We reach a similar conclusion with respect to the second significant difference between the parent application and the CIP, *i.e.*, the specified protecting group to be used on the phosphorus group involved in the oligonucleotide synthesis. Protecting groups are compounds that cover specific sites on molecules undergoing chemi-

cal reactions to insure that no reactions occur at these sites. After the desired reactions have occurred, the groups are removed. Defendants' parent application mentioned two protecting groups: a methyl group, which protects the phosphorus group, and a N-benzoyl group, which protects cytosine. A023.

The parent application mentioned the methyl group twice, once on A022 and once on A023, and neither mention indicated that the inventors contemplated using any other groups to protect the phosphate group. By contrast, the CIP described the use of a "hydrocarbyl (as previously defined herein) phosphorodichloridite, *e.g.*, methyl phosphorodichloridite," A101, and in the claims section described the group as any "hydrocarbyl radical containing up to 10 carbon atoms," A109. As with the support structure claims, there is no question that the language of the CIP was broader,¹³ and the only question is whether the more specific language of the parent application actually conveyed possession of the broader concept explicated in the CIP.

Defendants argue that the chemistry of protecting groups was basic and well known at the time the parent application was filed, and that a skilled reader would have recognized that the methyl radical specified in the parent application was merely a working example of a range of possible groups, namely, the hydrocarbyl radicals specified in the CIP. Defendants rely, for this argument, on language from the case law indicating that an applicant need not specify basic, commonly understood details of their inventions for these details to be incorporated into their patent. *See In re Howarth*, 654 F.2d 103 (C.C.P.A. 1981) (*affirming rejection* of claims as insufficiently detailed, but qualifying its holding with the acknowledgment that an

13. The parties agree that a methyl radical is a type of hydrocarbyl radical, although plaintiff

stresses that "hydrocarbyl radical" was a term first coined in the CIP.

applicant need not explicate every last obvious detail of his invention); *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367 (Fed.Cir.1986) (holding that, to meet the enablement¹⁴ requirement of § 112 a patent need not teach what is well known in the art), *cert. denied*, 480 U.S. 947, 107 S.Ct. 1606, 94 L.Ed.2d 792 (1987); *In re Hayes Microcomputer Products, Inc. Patent Litigation*, 982 F.2d 1527 (Fed.Cir. 1992) (patent application for computer programming invention met the description requirement by specifying the steps to be programmed into the microprocessor where the mechanics of each step would have been known to a skilled reader).

According to the logic of the above cases, defendants argue, they did not have to specify that other hydrocarbyl radicals groups besides methyl radicals could be used. However, defendants' situation is the exact opposite of the situations treated by the above cases. In the cases defendants cite, an applicant or patentee sought to claim *specific* material implicit in a *general* description. In contrast, defendants are trying, to claim a general class based solely on their mention of a single member of that class. More on point, therefore, are those cases holding that applicants do not 'possess' an entire genus merely by mentioning a single species belonging to that genus. *Regents of the Univ. of California v. Eli Lilly & Co.*, 119 F.3d 1559, 1568 (Fed.Cir.1997) (description of rat insulin DNA not equivalent to description to vertebrate or mammalian insulin DNA); *In re Smythe*, 480 F.2d 1376, 1383 (C.C.P.A. 1973) ("In . . . chemical cases, where there is unpredictability in performance of certain species . . . others than those specifi-

cally enumerated, one skilled in the art may be found not to have been placed in possession of a genus. . .").

Thus, whether or not protecting groups were, as defendants assert, a basic component of polynucleotide synthesis is irrelevant, as the language of the parent application contained no implication that the *inventors* had any broader class in mind than the methyl radical group mentioned. *Lockwood*, 107 F.3d at 1571-72 ("The question is not whether a claimed invention is an obvious variant of that which is disclosed in the specification. Rather, a prior application itself must describe an invention, and do so in sufficient detail that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought.")

Not only does patent law preclude inventors from claiming the entire scope of material made obvious by their inventions, but it is far from clear that the broad class of protecting groups claimed in the CIP *was* obvious at the time defendants filed the parent application. To begin with, the CIP claimed the use of a "hydrocarbyl radical *containing up to 10 carbons*," A109 (emphasis added), a rather specific limitation that had no precursor in the parent application. Methyl radicals, by contrast, contain only one carbon atom. Ogilvie Dec. ¶9. Moreover, the inventors themselves published an article in 1981, *Synthesis of Deoxyoligonucleotides on a Polymer Support*, in which they explained why a methyl group worked but a different group, trichloroethyl, proved difficult to remove at the end of the process. D1212. This discussion makes clear that not all

14. The relevant inquiry with respect to the *enablement* requirement is whether the application would have enabled a skilled reader to recreate the invention, and this inquiry requires courts to take into account the baseline knowledge of a well-informed reader. By contrast, the relevant inquiry with respect to

the specification requirement is whether the *author* of the application "possessed" the claimed material, *i.e.*, had it in mind, and not whether it was made obvious by his application. *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1571-72 (Fed.Cir.1997).

hydrocarbyl radicals work as protecting groups, and the parent application, in addition to giving no indication of the usefulness of any group other than methyl, provided no guidance as to how to choose any other group.

For the reasons detailed above, plaintiff's motion for summary judgment that certain claims of patents '066 and '418 are anticipated by the 1980 article under 35 U.S.C. § 102(b) is granted. Accordingly, we hold that claims 1-13 and 18-43 of the '066 patent and claims 1-7 and 21-24 of the '418 patents are invalid.

III. Plaintiff's inequitable conduct claim

Plaintiff has also moved for summary judgment that all five patents in suit are unenforceable due to inequitable conduct. This motion is based on defendants' failure, throughout the prosecution of these five patents, to effectively disclose the 1980 article as prior art. While we have serious doubts about defendants' ability to succeed on this question at trial, we find, for the reasons set forth below, that defendants have raised a genuine issue of material fact and therefore that summary judgment would be inappropriate.

To prove inequitable conduct based on a patent applicant's omission, a plaintiff (or in infringement cases, a defendant) must show, by clear and convincing evidence, that the applicant intentionally withheld "material"¹⁵ information, and that, in light of all the circumstances, that omission was "so culpable that the patent should be held unenforceable." *Purdue Pharma L.P. v. Boehringer Ingelheim GMBH*, 237 F.3d 1359, 1366 (Fed.Cir.2001) (citations omit-

ted) (quoted in *Dayco Products, Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1362-63 (Fed.Cir.2003)). Our holding earlier in this opinion that the 1980 article anticipated the '066 and '418 patents establishes that the 1980 article was, in fact, highly material to these applications, since it invalidated several of the applications' central claims. We therefore focus our discussion on the further requirements for a showing of inequitable conduct: intent and culpability.

Federal Circuit precedent requires that district courts exercise extreme caution before making a finding of inequitable conduct on a motion for summary judgment. *Burlington Industries, Inc. v. Dayco Corp.*, 849 F.2d 1418, 1422 (Fed.Cir.1988) ("A summary judgment that a reputable attorney has been guilty of inequitable conduct, over his denials, ought to be, and can properly be, rare indeed.") (emphasis in original); *KangaROOS U.S.A., Inc. v. Caldor, Inc.*, 778 F.2d 1571, 1573-74 (Fed. Cir.1985) (reversing summary judgment that inequitable conduct occurred and opining that "[a] summary judgment of fraud or inequitable conduct, reached while denying to the person accused of the fraud or inequitable conduct the opportunity to be heard on the issue, is a draconian result"). To defeat such a motion, a defendant need only offer a good-faith explanation for its conduct that "is not on its face implausible." *Dayco Products*, 329 F.3d 1358.

Of course, as plaintiff notes, a finding of inequitable conduct on summary judgment would not be unprecedented. See *Paragon Podiatry Lab., Inc. v. KLM Labs.*, 984 F.2d 1182 (Fed.Cir.1993); *Brasseler,*

15. Under the rule in effect during the time defendants were prosecuting a patent, information is "material" if "a reasonable examiner would consider the withheld prior art important in deciding whether to issue the patent." *Merck & Co., Inc. v. Danbury Phar-*

macal, Inc., 873 F.2d 1418, 1421 (Fed.Cir. 1989). Thus, to show that prior art was material, a plaintiff need not show that, had the examiner seen the information, he necessarily would have rejected the related claims.

U.S.A. I, L.P. v. Stryker Sales Corp., 267 F.3d 1370 (Fed.Cir.2001).¹⁶ However, the facts of these two cases underscore the exceptional nature of the relief plaintiff seeks. In *Brasseler*, the patent prosecution attorney failed to disclose a material prior sale, i.e., a sale occurring more than one year prior to the filing of the patent application. His only defense, that he did not know the exact date of the sale, was wholly implausible in light of the clear evidence that he knew a sale had occurred and simply failed to spend "ten minutes" finding out its exact date. *Id.* at 1376-78. Similarly, in *Paragon*, the patent applicant had, among other things, responded to the examiner's request for affidavits from disinterested parties with three affidavits from professionals who all held stock in *Paragon*, and, in at least one case, were paid consultants for *Paragon*. *Id.* at 1191-92. Briefly put, in *Brasseler*, the patentee had only a facially implausible explanation to offer for its failure to disclose material information, and in *Paragon*, the patentee had actually engaged in *affirmative* misrepresentation. These opinions, therefore, are of limited relevance to a case presenting nontrivial ambiguities.

In the present case, defendants have offered several defenses to plaintiff's allegation of inequitable conduct: (i) that they believed the 1980 article was not prior art because the parent application was filed within a year of its publication and the CIP was entitled to the effective date of the parent application; (ii) that their disclosure of the article to the examiner in the Ogilvie interference negates, or weighs against, an inference of bad faith; and (iii) that, at least with respect to the '418 and subsequent patents, they fulfilled their ob-

ligation by disclosing the article once in 1985 and once in 1986.

As an initial matter, so as to provide some guidance for the upcoming hearing on the issue of inequitable conduct, we briefly set forth our reasons for finding certain of defendants' arguments to be untenable, at least absent further evidence. To begin with, defendants' argument that their disclosure of the 1980 article in the Ogilvie interference somehow negates any potential inference of inequitable conduct is, at this point, unpersuasive. See *A.B. Dick Co. v. Burroughs Corp.*, 798 F.2d 1392, 1399, n. 7 (Fed.Cir.1986) (upholding finding of inequitable conduct for failure to disclose material publications, even though these publications were disclosed in an intervening interference proceeding). The district court opinion upheld in *Dick* concisely expressed the perverseness of defendants' logic:

First of all, the PTO cannot realistically be thought of as the equivalent (say) of a small law office, in which notice to one person may fairly be deemed notice to all. It is not necessarily true that the PTO Examining Division will have access to proofs filed in the course of an interference.... More important in equitable terms, Sweet sought to advance his own ends by using his final report to prove dates in the interference proceeding—but once the interference proceeding was over, he made no effort to cite either the Magarvey articles or the Waage reference to the Examiner in the context of Sweet's request for issuance of the patent on all the earlier-allowed claims endorsed ...

16. Plaintiff also cites *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534 (Fed.Cir.1998). However, in that case the court held on summary judgment that *no* inequitable conduct occurred. Given the relevant burden of proof and the exceptional nature of the remedy sought, it is

of course easier to find the *absence* of inequitable conduct as a matter of law by determining that the information withheld was not material than to find the occurrence of inequitable conduct as a matter of law.

A.B. Dick Co., 617 F.Supp. at 1397 ((citation omitted). To distinguish *A.B. Dick Co.* meaningfully at trial, defendants must show that their submission of the 1980 article to an interference examiner weighs against an inference of inequitable conduct, through evidence of general P.T.O. practice with respect to: 1) the interference officer's ability, both institutionally and practically speaking, to invalidate a senior party's application based on its own prior art; 2) the transfer of files from interference proceedings to prosecution proceedings; and 3) the role of that file (if any) during the remainder of the prosecution.

We find similarly unavailing defendants' argument that their disclosures in 1985 and 1986 somehow preclude a finding of inequitable conduct with respect to the prosecution of the '418 and subsequent patents. To begin with, the first of these disclosures was made nearly 18 months after patent '418 was filed, and the second was apparently made after the prosecution examiner had allowed the application in full. As such, there is a very serious question as to whether these disclosures were meaningful. *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1182 (Fed.Cir.1995) (upholding finding of inequitable conduct, in part because material references, though eventually disclosed to the examiner, "were not cited when they should have been").

Moreover, defendants' 1985 reference was highly unlikely to have alerted the examiner to the potential significance of the article. *Id.* at 1185 (noting that "burying" a particularly material reference can

be probative of bad faith). On page six of a nineteen page request to amend two rejected claims (after all other pending claims had been decided), in a section describing the invention, defendants wrote "Since Applicants' first report in Tetrahedron Letters, February 1980)[sic] of the process described in the present application, the process has become accepted by industry as the model upon which all other techniques are compared . . ." D0250. Given the late timing of this reference, the fact that at that point most of defendants' claims had already been decided, the purpose of the submission, and the fact that the thrust of the sentence containing it was on how important the invention was, we have serious questions about how this reference could be considered sufficient to call the examiner's attention to the materiality of the article as potential prior art.

Notwithstanding these doubts, we deny summary judgment because defendants have raised a genuine issue of material fact as to whether their failure to disclose the 1980 article was based on a good-faith belief that the article was made immaterial by the PTO's September 17, 1982 finding that the claim in defendants' CIP subject to the Ogilvie interference was entitled to the priority date of the parent application.¹⁷ An important question of fact exists as to the character of this determination: plaintiff characterizes it as preliminary, provisional, easily overturned, and limited to the purposes of the interference, whereas defendants characterize it as substantive and general. The plausibility of defendants' good faith reliance on this determination depends in large measure on the resolution of this question at trial.¹⁸

17. Although this is the only broad argument of defendants' that we currently see as having the potential to protect all five patents-in-suit from invalidation for inequitable conduct, we note that defendants have also established, in their letter of clarification sent on December 24, 2003, a genuine issue as to whether the

1980 article was cumulative to the '066 patent in the context of defendants' '679 application.

18. Toward this end, it would be helpful to hear evidence as to why Ogilvie did not point out the anticipation issue during the interference proceeding and instead chose to aban-

Regardless of the character of the PTO's 1982 determination of priority, defendants will need to explain at trial how, during the year-and-a-half between the date they filed the CIP and the date they were notified of the PTO's decision, they could have proceeded with their application, in good faith, without disclosing the 1980 article to the examiner. We assume for purposes of this motion that, as defendants assert, they simply relied on their (as it happens, erroneous) legal view that they were entitled to rewrite, in broader language, certain aspects of their invention while claiming the parent filing date for these aspects. This reliance was, at the very least, a departure from their duty of candor to the PTO under 37 C.F.R. § 1.56(a) (2003).

An applicant is obliged to provide full disclosure *throughout* the application process. *Id.* Moreover, "[i]t is axiomatic that '[c]lose cases should be resolved by disclosure, not unilaterally by applicant.'" *Critikon, Inc. v. Becton Dickinson Vascular Access, Inc.*, 120 F.3d 1253, 1257 (Fed.Cir. 1997) (quoting *LaBounty Mfg., Inc. v. United States Int'l Trade Comm'n*, 958 F.2d 1066, 1076 (Fed.Cir.1992)), *cert. denied*, 523 U.S. 1071, 118 S.Ct. 1510, 140 L.Ed.2d 665 (1998). The sole remaining issue to be resolved at trial, then, is whether defendants' dereliction was sufficiently egregious, and revealed sufficient bad faith and culpability, to support a finding of inequitable conduct.

IV. Plaintiff's claim that patent '679 fails under 35 U.S.C. §§ 101 and 112

Plaintiff's final motion is for the invalidation of patent '679 based on an error in the description language that, plaintiff argues,

don his challenge. It would also be helpful if the parties offered further argument as to whether the PTO's ruling that defendants' challenged claim was entitled to the parent application priority date for purposes of establishing defendants as the senior party in

makes this patent unworkable. *See* 35 U.S.C. §§ 101 (utility requirement) and 112 (enablement requirement). For the reasons set forth below, this motion is denied.

■ The parties agree on the basic facts relevant to this issue. In column 20 of their application, defendants described "X," a sub-structure of the chemical formula claimed in the patent, in terms of a conjunction between three sets of properties that are, as a practical matter, mutually exclusive. The exact language of defendants description was as follow:

X is NR²R³ wherein [1] R² and R³ taken separately each represent alkyl, aryl, aralkyl, cycloalkyl and cycloalkylalkyl containing up to 10 carbon atoms; [2] R² and R³ when taken together form an alkylene chain containing up to 5 carbon atoms in the principal chain and a total of up to 10 carbon atoms with both terminal valence bonds of said chain being attached to the nitrogen atom to which R² and R³ are attached; and [3] R² and R³ when taken together with the nitrogen atom to which they are attached form a saturated nitrogen heterocycle including at least one additional heteroatom from the group consisting of nitrogen, oxygen and sulfur.

A172 (emphasis added) (numbered for ease of reference).

It is undisputed that each of 1, 2 and 3 is inconsistent with the other two conditions. It is moreover clear from the parties' submissions that a skilled (or even lay) reader would immediately recognize as much. Indeed, defendants' use of a conjunctive form instead of a disjunctive form is apparently such a widespread error in the field that it has effectively become a convention.¹⁹ De-

the interference necessarily determined the question of whether defendants' claim was entitled to the priority date for purposes of avoiding a prior art bar.

19. Defendants represent that "[l]eading companies from around the world" have made

fendants made this error elsewhere and were corrected by the examiner. Plaintiff's own expert, Dr. Ogilvie, admitted during his deposition that at least one patent of his contains the error. D313-3321. Most importantly, plaintiff does not dispute that patent '679 has been in heavy use for years, without any problem.

This widespread error seems to have arisen as a misuse of the accepted "Markush" language for claiming multiple alternative compounds that cannot be described as generic class. Pl.'s Reply at 8-9.²⁰ The basic Markush phrase correctly uses 'and' in a disjunctive sense, i.e., by describing a compound as: 'R' wherein R is a material selected from the group consisting of A, B, C, and D. *Id.* The shorthand way of stating this claim, in Markush, is: 'R' wherein R is A, B, C, or D. *Id.* What appears to be happening is that drafters, when they use the shorthand form of the Markush construction, forget to substitute 'or' for 'and.'

Based on this error by defendants, plaintiff seek to invalidate defendants' '679 patent. Plaintiffs rely, in taking this position, on the statement in *Process Control Corp. v. Hydrexclaim Corp.*, 190 F.3d 1350, 1357 (Fed.Cir.1999), *cert. denied*, 529 U.S. 1037, 120 S.Ct. 1531, 146 L.Ed.2d 346 (2000) that "[w]here ... the claim is susceptible to only one reasonable construction, ... we must construe the claims based on the patentee's version ... as he himself drafted it." Plaintiff reads *Process Control* to mean that *whenever* a drafting error results in language that, if read literally, would render the patent useless, the court must overturn the PTO's grant of patent protection.

the same error in their patents. Opp'n at 14. Plaintiff appears to concede as much. See Reply at 6. As a side note, the use of 'and' to denote a disjunction is also common in federal criminal statutes, where courts routinely interpret 'and' to mean 'or' in order to further congressional intent. See, e.g., *United States*

However, in *Process Control*, the patentee asked the court to read a technical term, "discharge rate," one way in one clause and another way in a nearby clause. The court held as it did to "prevent[] unduly burdening competitors who must determine the scope of the claimed invention based on an erroneously drafted claim." *Id.* at 1357. Here, by contrast, defendants' use of 'and' instead of 'or' could not reasonably give rise to confusion as to the scope of the patent. Accordingly, there is simply no consideration weighing against the general principal, noted in *Process Control*, see *id.* at 1356, that "[w]hen claims are amenable to more than one construction, they should when reasonably possible be interpreted so as to preserve their validity." *Modine Mfg. Co. v. U.S. Intern. Trade Com'n*, 75 F.3d 1545, 1557 (Fed.Cir.1996) (quoting *Whittaker Corp. v. UNR Indus., Inc.*, 911 F.2d 709, 711 (Fed. Cir.1990)), *cert. denied sub nom. Showa Aluminum Corp. v. Modine Mfg. Co.*, 518 U.S. 1005, 116 S.Ct. 2523, 135 L.Ed.2d 1048 (1996). See also *Banyan Licensing v. Allied Foam & Packaging, Products, Inc.*, 134 F.Supp.2d 907, 909 (N.D. Ohio 2001) (finding that *Process Control* did not require invalidation of poorly drafted patent, so long as the correct sense of the patent was understandable to the relevant audience).

The principal of preserving patent validity whenever possible carries special weight in this case, where a decision invalidating patent '679 on the basis of a common error arguably could jeopardize numerous longstanding patents. Accord-

v. Blackwell, 946 F.2d 1049, 1052-53 (4th Cir.1991) (interpreting 18 U.S.C. § 841(c)).

20. "Markush" language is named for the PTO Commission's 1925 decision in *Ex parte Markush*, which (for the first time) allowed applicants to claim alternative compounds.

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