No. 03-1237

IN THE
Supreme Court of the United States

MERCK KGAA,

Petitioner,

v.

INTEGRA LIFESCIENCES I, LTD. and THE BURNHAM INSTITUTE,

Respondents.

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

BRIEF OF NEW YORK INTELLECTUAL PROPERTY LAW ASSOCIATION AS *AMICUS CURIAE* IN SUPPORT OF PETITIONER

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STATEMENT OF INTEREST OF AMICUS CURIAE

This brief *amicus curiae* is submitted in support of Petitioner by the New York Intellectual Property Law Association (the "NYIPLA" or the "Association"), a professional association of more than 1,300 attorneys whose interests and practices lie in the area of patent, copyright, trademark, trade secret and other intellectual property law.[1]

NYIPLA members include in-house attorneys working for businesses that own, enforce and challenge patents as well as attorneys in private practice who represent both patent owners and accused infringers. NYIPLA members represent both plaintiffs and defendants in infringement litigation and also regularly participate in proceedings before the United States Patent and Trademark Office ("PTO"), including representation of applicants for patents and parties to interferences.

A substantial percentage of NYIPLA members participate actively in patent litigation. Due in part to the concentration of a number of large pharmaceutical and biotech firms in the New York metropolitan area, significant numbers of NYIPLA members participate regularly, as representatives of both the traditional research-based "branded" firms and their newer "generic" competitors, in litigation involving claims of infringement under 35 U.S.C. § 271(e)(2).[2]

Section 271(e)(2) was enacted as part of the Drug Price Competition and Patent Term Restoration Act of 1984,

[1] Pursuant to SUP. CT. R. 37.6, the NYIPLA and its counsel represent that they have authored this brief in whole, and that no person or entity other than the *amicus curiae* and its counsel have made a monetary contribution to the preparation or submission of this brief. Pursuant to SUP. CT. R. 37.3, both petitioner and respondents have consented to the filing of this brief and documents reflecting such consent have been filed with the Clerk of this Court.

[2] 35 U.S.C. § 271(e)(2) (2005).

popularly known as the Hatch-Waxman Act ("Hatch-Waxman Act" or "1984 Act").[3] Under certain defined circumstances, Section 271(e)(2) makes the filing of an Abbreviated New Drug Application ("ANDA") with the Food and Drug Administration ("FDA") an "artificial" act of patent infringement. By insuring that the jurisdiction of the federal courts can be invoked at an early stage, the 1984 Act promotes prompt resolution of patent disputes between the branded innovator and the generic potential entrant.

This action involves interpretation of a related section of the 1984 Act, now codified as 35 U.S.C. § 271(e)(1),[4] which exempts from potential infringement liability all activities, whether or not associated with a "commercial project", whether or not such activities might interfere with any income the patentee might expect to receive during the period of exclusivity, and whether or not already exempt under the so-called "common law exemption" or "research exemption" — so long as such activities were carried out "solely for uses reasonably related to the development and submission of information under a federal law which regulates the manufacture, use or sale of drugs" (the "FDA exemption").

All sectors of the biomedical industry initially understood that the application of the FDA exemption of Section 271(e)(1) was not limited to information contained in ANDA submissions made by generic firms under the 1984 Act, but rather extended to all data from experiments that were "reasonably related" to submissions to the FDA which are made by a far broader segment of the industry. That initial understanding was confirmed by this Court's *Lilly* decision in 1990,[5] and the decision of the court below represents the

[3] Pub. L. No. 98-417, 98 Stat. 1585 (1984).

[4] 35 U.S.C. § 271(e)(1) (2005).

[5] *Eli Lilly & Co. v. Medtronic, Inc.*, 496 U.S. 661 (1990).

first suggestion that the plain meaning of the FDA exemption can be narrowed by resort to legislative history.

The Association's membership includes attorneys representing at least four different types of firms who conduct pharmaceutical and related biological, biotech, biomedical and medical device research and thus have an interest in the proper construction of the FDA exemption.[6]

Since its founding in 1922, the NYIPLA has committed itself to maintaining the integrity of United States patent law, and to the proper application of that law. Nowhere is the rational and considered application of patent law principles more important to the economy of the United States than in enacting and construing research exemptions in a fashion that will achieve the proper balance between the right of patentees to exclusivity for "limited times" and the "progress of science" which the Constitutionally mandated Patent Law attempts to secure for the public by making those grants of exclusivity.[7]

In no other industry are the economic stakes surrounding patent protection higher than in the pharmaceutical industry where one study estimates the average cost to develop a new drug at $802 million, where the members of the Pharmaceutical Research and Manufacturers of America invested over $30 billion in 2001 alone in discovering and developing new medicines, and where "Average total drug development time has gone from 8.1 years in 1960, to 11.6 years in the 1970s, to 14.2 years in the 1980s and 1990s".[8]

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[6] These four categories of firms are discussed in more detail, *infra*, at 5-7.

[7] U.S. CONST. art. I, § 8, c1. 8.

[8] Gregory J. Glover, *Competition in the Pharmaceutical Marketplace*, at 1 and 3-4, Testimony before the FTC and the DOJ (March 19, 2002) <http://www.ftc.gov/opp/intellect/020319gregoryjglover.pdf>.

In enacting the statutory FDA exemption, Congress gave explicit recognition to the importance of achieving the correct balance between the rights of the patentee and the "progress of science" in this very important industry. Because of its dissatisfaction with the application of the common law exemption to the pharmaceutical industry by the court of appeals in *Roche Prods., Inc. v. Bolar Pharm. Co.*,[9] Congress provided a clear legislative statement that all work done to generate data "reasonably related" to submissions to the FDA could be carried out free from the prospect of infringement liability.

SUPPLEMENTAL FACT STATEMENT

Fair and accurate presentations of the operative facts are set forth in the "Brief For Petitioner" of February 15, 2005 ("Merck Brief"),[10] the "Brief For The United States As *Amicus Curiae*" of December 2004" ("U.S. Brief"), and in the "Petition for Writ of Certiorari" of March 3, 2004 ("Petition"). The Association can perceive no justification for repetition of those recitals.

It is believed, however, that the Court might benefit from some convenient catalogue of the different types of firms that make submissions to the FDA and the different types of research and development in which those firms are engaged. Such a catalogue may assist the Court in understanding the interest that such firms maintain in proper interpretation of the FDA exemption, and also might assist in understanding

[9] *Roche Prods., Inc. v. Bolar Pharm. Co.*, 733 F.2d 858 (Fed. Cir. 1984).

[10] The Association has adopted and will attempt to employ throughout this brief for the convenience of the Court, the same shorthand terms employed by petitioner, including use of the term "Merck" to refer to the petitioner Merck KGaA. The Appendix to the Petition for Writ of Certiorari is cited as "P.A." The Joint Appendix and the Supplemental Joint Appendix are cited as "J.A." and "S.A.", respectively.

the different categories of patent claims that such firms prosecute to secure protection of their own discoveries — whether of (a) pioneering innovations or of (b) improvements and alternatives to such pioneering discoveries.

Additionally, the Association believes that some explanation of the nature of the patent claims at issue below would assist the Court in assessing the relationship between those claims and the research and development work actually carried out at Scripps between August of 1994 and 1998.

Finally, it may be useful to provide a capsule restatement to differentiate between that research and development work done by Scripps which was presented to the jury and that which was not — and, consequently, which of the research and development work done at Scripps was properly considered by the court of appeals.

A. *The Firms Affected By The FDA Exemption*

The Association's membership includes attorneys who represent at least four different types of firms that conduct pharmaceutical and related research and development at different levels of the industry,[11] including:

1. The major developers of branded pharmaceuticals, which must expend great sums of money to bring a single new drug to market, through both (a) the initial Investigational New Drug ("IND") Application which contains preclinical *in vitro* and *in vivo* animal studies; and

[11] As the industry has evolved since 1984, these lines of demarcation have sometimes become blurred. Some generic manufacturers have begun to patent their own innovative products and processes, and some traditionally branded manufacturers now market generic drugs as well, including generic versions of their own pioneering drugs. Both branded and generic manufacturers sometimes become involved in biotechnical research and development activities, and universities now sometimes engage in activities traditionally associated with each of the other three types of firms.

(b) the New Drug Application ("NDA") which requires several "phases" of human clinical studies designed to establish the safety and effectiveness of the drug and secure the approval by the FDA which is necessary before any new pharmaceutical product can be marketed;[12]

2. The biotech firms which concentrate their efforts upon research, identification and development of (A) both naturally occurring and genetically modified biological materials or products with therapeutic or diagnostic potential; (B) methods for the manufacture of such materials for use both in the laboratory and in commercial production; (C) methods for the use of such materials to obtain desirable therapeutic or diagnostic results; (D) fundamental biotechnology methods or "tools" for use in both research and commercial laboratories; (E) specialized assays for diagnostic use by consumers and both research and commercial laboratories; and (F) specialized assays for efficient laboratory "screening" of potential materials for specific therapeutic or diagnostic applications;[13]

3. The generic companies which, by virtue of the 1984 Act, can now bring cheaper versions of pioneering drugs to market upon expiration of the innovator's patent coverage under an ANDA which merely sets forth a showing of bioequivalence and bioavailability — thereby avoiding the need to expend many millions of dollars for all of the clinical

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[12] The regulations governing the respective submissions to the FDA for IND Application, NDA and ANDA purposes are identified and discussed in the Merck Brief (at 7-8) and the U.S. Brief (at 2 and 9-11). Again, no purpose would be served by duplicative discussion of those regulations here.

[13] In subsequent portions of this brief, these activities of the biotech and biomedical firms are sometimes referred to for convenience as "Category A" through "Category F" activities. As will be discussed, *infra*, each such category typically is associated with a particular format of patent claim.

testing (and almost all of the preclinical testing) that would have been required before 1984 to obtain approval of an IND Application and NDA for the generic product; and

4. The public and private universities which, in their medical and other graduate school departments, conduct research and generate both preclinical and clinical development data regarding inventions for potential submission to the FDA.[14]

B. *Respondents' Patent Claims*

Claim 8 of United States Patent No. 4,792,525 ("the '525 patent"), represents the broadest "Category A" product claim asserted against Merck and is the only such claim discussed by the court below. P.A. 14a-15a.[15] Claim 8 is directed to a broad genus of non-naturally occurring peptides that contain the cell-attachment-promoting RGD tripeptide segment of an adhesive glycoprotein known as fibronectin.[16] The

[14] The *Wall Street Journal* reported on December 21, 2004 that Columbia University's licensing revenues for the fiscal year ended June 30, 2003 totaled $178.4 million. Bernard Wysocki, Jr., *Wall St. J.*, (December 21, 2004) at 1.

[15] The Category A product claims of the patents asserted against Merck and not held invalid include claim 8 of the '525 patent, which is directed to potential therapeutic compounds, and claim 1 of United States Patent No. 4,789,734 ("the '734 patent"), which is directed to potential diagnostic compositions. The Category B manufacturing method claims of the patents asserted against Merck include claims 4 and 8 of United States Patent No. 4,879,237 ("the '237 patent"). The Category C use method claims of the patents asserted against Merck include claims 15 through 18 of United States Patent No. 5,695,997 ("the '997 patent"). P.A. 46a. As is discussed, *infra*, none of the patents asserted against Merck contain claims directed to inventions in Category D, Category E or Category F.

[16] The term "fibronectin" is derived from the Latin words *fibra* ("fiber") and *necto* ("to attach"). The fibronectin glycoprotein is known to bind to selected receptor sites on a broad family of transmembrane proteins known as "integrins".

assignors of respondents were awarded the '525 patent based upon their recognition that the RGD tripeptide segment was responsible for the ability of the fibronectin glycoprotein to bind to certain integrin receptors and that this property could be engineered into the claimed compounds.

Because the '525 patent teaches that the RGD segment may be "incorporated as part of a larger molecule" (Col. 2, Lines 42-44), and because such larger molecules can be formulated using non-naturally occurring amino acids (such as the D-forms of the naturally occurring amino acids), the scope of the claimed genus is virtually unlimited.

The specification of the '525 patent also teaches that some species of the claimed genus can be used to "inhibit cell attachment" (Col. 5, Lines 46-58), and identifies two such peptides (the tetrapeptide RGDS and the hexapeptide PRGDSG).

None of the patents asserted against petitioner claim or discuss inhibition of angiogenesis or compounds which inhibit angiogenesis, sometimes referred to as angiogenesis antagonists. Nor do they claim or discuss any methods that could be used to screen the innumerable modified peptides of the claimed genus to identify species which might demonstrate potential utility for the inhibition of angiogenesis.

C. *The 1994-1998 Work At Scripps*

Petitioner's initial interest in collaboration with Scripps was sparked by the research successes of Dr. Cheresh in inhibiting the growth of tumors using the monoclonal antibody LM609 to block the $\alpha_v\beta_3$ receptor, one of six integrin receptors to which fibronectin is known to bind. P.A. 26a; Merck Brief at 8-10.[17] Petitioner hoped that, in collaboration

[17] Dr. Cheresh's monoclonal antibody (LM609) is not a member of the broad genus claimed by respondents.

with Scripps and Dr. Cheresh, it could develop non-toxic compounds which would demonstrate superior inhibition of angiogenesis and which could be delivered therapeutically to tumor sites and function effectively as tumor-starving drugs useful in the fight against cancer.[18] J.A. 97a-107a.

By 1991 petitioner had prepared the cyclic EMD66203 lead compound ("EMD6"), which Judge Newman's dissent correctly characterized as having the sequence c(RGDfV). P.A. 26a. Long prior to negotiation of the 1995 contract, petitioner also had prepared two cyclic derivatives of EMD6, EMD85189 ("EMD8") and EMD121974 ("EMD12"). These three related cyclic compounds represented a tiny subgroup of the broad genus claimed in the '525 patent. Although "blocked" by the broad Category A product claims prior to expiration of the '525 patent, EMD6 had been shown to be a potentially potent agent for that entirely new therapeutic purpose several months before the first of the experiments considered by the jury was carried out by Scripps in August of 1994.[19]

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[18] As the decision below and the briefs reflect, such agents would have other potential therapeutic uses as well. For simplicity, and because of the arrangements petitioner has concluded with the National Cancer Institute ("NCI") to fund the clinical tests of EMD12 (now known as cilengitide), the Association's presentation will discuss only the therapeutic end use involving the control and reduction of cancerous tumors.

[19] Although the issue was not discussed below, there is no reason to believe that (a) EMD6, (b) EMD12, and (c) the small subgroup of cyclic peptides which Scripps was working to develop, are not separately patentable as non-obvious improvements over claim 8 of the '525 patent. *See*, *e.g.*, *In re McLamore*, 379 F.2d 985, 990 (C.C.P.A. 1967); *In re Ruschig*, 343 F.2d 965, 978 (C.C.P.A. 1965). A patent application was filed on the monoclonal antibody developed by Dr. Cheresh and has been issued as Brooks *et al.* United States Patent No. 5,753,230. S.A. 20.

Petitioner transmitted EMD6 to Scripps for testing as an angiogenesis antagonist under the same protocols used to establish the antagonist functionality of the LM609 monoclonal antibody that Dr. Cheresh had developed previously. The results of that testing under the 1988 agreement led to negotiations in mid-1994 which resulted in the 1995 agreement — which focused upon preclinical *in vitro* and *in vivo* animal studies on EMD6 and its EMD8 and EMD12 derivatives.

By 1997, the results of the *in vitro* and *in vivo* animal studies at Scripps led to the selection of EMD12 (cilengitide), the c(RGDf-NMeV) species of the claimed genus, as the best candidate for the IND Application.[20]

D. *The Facts Considered By The Jury*

None of the work which the jury considered involved preparation of EMD6 or its derivatives by petitioner. Nor did the trial court submit to the jury the initial Scripps comparison of the angiogenesis inhibiting properties of EMD6 and LM609. Indeed, the trial court held that, with the exception of a single chicken CAM pharmacokinetics experiment in August of 1994, all of the work done by Scripps before 1995 under the 1988 contract was subject to the common law exemption and could not be considered by the jury.[21]

By mid-1994, petitioner had been fully informed of the outstanding angiogenesis-inhibiting properties of EMD6 — and clearly anticipated that similar properties would be confirmed in the related cyclic derivatives of that lead

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[20] As the Merck Brief points out (at 15), EMD12 differs from EMD6 only in the addition of a single methyl group (CH_3).

[21] See U.S. Brief at 4. Since no appeal of that ruling was perfected by either petitioner or respondents, the court of appeals was without jurisdiction to review it.

compound. In short, whatever the court of appeals majority may have believed, any "screening" of the broad claimed genus to identify compounds of interest for the specific therapeutic application of interest had been completed well before initiation of the 1994-1998 work which was presented to the jury.

SUMMARY OF ARGUMENT

The NYIPLA is mindful of this Court's directive that a brief for *amicus curiae* should be limited to "relevant matter not already brought to its attention by the parties" (SUP. CT. R. 37.1).[22]

In Point I.A of the Argument, the Association supplements its endorsement of the statutory construction arguments already submitted by Merck and the United States with a short discussion of an industry practice which usually requires conducting parallel preclinical development work on a small series of compounds.

In Point I.B, the Association demonstrates that enactment of Section 271(e)(1) by Congress finds its justification, not in the concept of *de minimis* as the court of appeals majority believed, but in Article I, Section 8 of the Constitution and in certain basic economic principles previously recognized by this Court.

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[22] In addition to the Merck Brief, the U.S. Brief and the Petition, the Association has reviewed drafts of two additional briefs *amicus curiae*, the Brief of Intellectual Property Professors As *Amici Curiae* In Support Of Neither Party (the "Professors' Brief") and the Brief *Amici Curiae* on behalf of the Consumer Project on Technology ("CPT"), Electronic Frontier Foundation ("EFF") and Public Knowledge ("PK") (the "Consumers' Brief"). Arrangements also have been made to permit counsel for the Association to review a final draft of the Brief *Amicus Curiae* for the American Intellectual Property Law Association (the "AIPLA Brief") prior to the Association's deadline with the printer. Every effort has been made to comply with the spirit of Rule 36.1 by minimizing to the extent possible any overlap in factual subject matter and argumentation between this brief and those additional submissions.

In Point II, the Association endorses the conclusion of the Professors' Brief that there is no need to consider application or construction of the common law exemption on the record presently before this Court. The Association respectfully disagrees with the suggestion in the Professors' Brief that the FDA exemption arises from considerations different from those upon which the common law research exemption necessarily is based. However, the Association does agree that there can be no justification on this record for asking the Court to determine hypothetically whether an overlap or an hiatus exists as between the respective scopes of the two exemptions.

In Point III of the Argument, the Association submits that there also is no need to address on this record the ostensible concern of the court of appeals majority with either "screening" or biotechnology "tool" inventions. P.A. 13a-14a, 21a. In the first place, none of the upstream screening work that took place before August of 1994 is before this Court for review. Secondly, none of the claims asserted against Merck are directed to any Category D "tool", Category F "screening" or Category E diagnostic subject matter.

ARGUMENT

I. THE PLAIN LANGUAGE OF THE STATUTORY FDA EXEMPTION MANDATES REVERSAL OF THE COURT OF APPEALS DETERMINATION

A. All Of The Developmental Research Carried Out At Scripps On Behalf Of Petitioner And Considered By The Jury Fell Squarely Within The Plain Meaning Of The Statutory FDA Exemption

The Association endorses the cogent statutory construction analyses set forth in the Merck Brief, the U.S. Brief and the Petition, all of which mandate reversal and none of which will be repeated in this brief. As those submissions forcefully point out, the panel majority's belief that the alleged Congressional focus on the ANDA mechanism and generic drugs "informs the breadth of the statutory test" cannot be reconciled with this Court's *Lilly* ruling.[23]

The types of preclinical work carried out by Scripps beginning in August of 1994, as catalogued in Judge Newman's dissent, were all "reasonably related" to the IND Application. Indeed, if cilengitide (EMD12) should be carried through to an approved NDA, a great deal of the data generated for that compound in the Scripps work would be set forth in the package insert required by FDA regulations.

Finally, the Association submits that the Merck Brief did not go far enough by saying at page 45 that:

> [T]here is nothing in the FDA exemption to suggest that the protection evaporates if the drug

[23] In their discussion of the preclinical studies required for submission of an IND Application, moreover, those submissions point out the blatant inconsistency between the explicit terms of the statute and the panel majority's belief that the FDA exemption must be limited to clinical submissions.

> sponsor pursues the risky prospect of FDA approval of a drug while continuing to explore back up drug candidates in parallel.

The practice in the industry is that basic *in vitro* and *in vivo* preclinical studies almost always will be carried out, not on a single candidate compound, but on a limited number of such compounds, whether or not those candidates are close chemical analogues. Every prudent pharmaceutical executive knows the importance of maintaining the availability of a fallback compound for use in the event the first IND compound encounters problems in the clinics. Additionally, the first candidate compound may prove unsuitable for commercial development for other non-clinical reasons. For example, formulations of the candidate compound may not demonstrate sufficient long term stability for an acceptable shelf life. Generation of comparable preclinical data for a limited number of backup compounds in parallel thus represents a recognized sound business practice in the industry.

B. The Statutory FDA Exemption Arises, Not From The *De Minimis* Maxim As The Court Of Appeals Majority Ruled, But Rather From Article I, Section 8 of the Constitution And From The Economic Principles Echoed In This Court's Decisions Which Inherently Endorse Competition In The Research And Development Of Improvements And Alternative Technologies And Proscribe Unwarranted Extensions Of The Patent Term Via Post-Expiration Royalties

The panel majority's resort to the principles of the *de minimis* maxim to justify its interpretation of the FDA exemption reflects a basic misconception. That misconception has been criticized by a number of

commentators,[24] and the Consumers' Brief contains a useful discussion of the precedents which need not be repeated here.

The FDA exemption must be broadly construed both because it is firmly rooted in the explicit language of the Constitution and because this Court (a) has recognized that competitors of the innovator should not be prevented from researching and developing improvements and alternatives to patented technology, whether or not the commercial practice of the fruits of that research and development may be "blocked" during the limited period of exclusivity; and (b) has proscribed unwarranted extensions of the "limited times" fixed by Congress for the exclusive rights of the patentee.

Despite the fact that the "common law exemption" was created in 1813 by Justice Story and has been universally recognized by the lower federal courts ever since, this Court has never had occasion to consider the doctrine directly.[25] This Court has several times explained the nature and significance of the patentee's bargain with the public. That bargain derives from Article I, Section 8 of the Constitution which reads:

> To promote ***the progress of science*** and useful arts, by securing for ***limited times*** to authors and inventors the exclusive right to their respective writings and discoveries

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[24] *See, e.g.*, Janice M. Mueller, *The Evanescent Experimental Use Exception from United States Patent Infringement Liability: Implications for University/Nonprofit Research and Development*, 56 BAYLOR L. REV. 917, 935 (2004).

[25] Both the Professors' Brief and the Consumers' Brief set forth learned discussions of the common law research exemption which need not be repeated here.

(Emphasis supplied). For example, in *Universal Oil Prods. Co. v. Globe Oil & Ref. Co.*, 322 U.S. 471, 484 (1944) Justice Reed explained the Constitutionally-based bargain as follows:

> As a reward for inventions and ***to encourage their disclosure***, the United States offers a seventeen-year monopoly to an inventor who refrains from keeping his invention a trade secret.

(Emphasis supplied). *See also Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 484 (1974) (Disclosure is "the *quid pro quo* of the right to exclude"); *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146 (1989) ("The Patent Clause itself reflects a balance between the need to encourage innovation and the avoidance of monopolies which stifle competition without any concomitant advance in the 'Progress of Science and useful Arts'"); *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 52, 63-64 (1998).

As Judge Newman's dissent pointed out, however, disclosure of an invention will not stimulate "the progress of science" as the framers intended in any significant way unless research and development experimentation directed to improvements and alternatives to the patented innovation can be carried out during the period of exclusivity (29a, 30a). This principle was inherently accepted in a number of this Court's previous examinations of the antitrust legality of arrangements designed to facilitate the availability of "blocking" improvements through cross-licensing and pooling arrangements.

For example, in the *Gasoline Cracking* case, *Standard Oil Co. (Ind.) v. United States*, 283 U.S. 163, 171 (1931), the Court said:

> An interchange of patent rights and a division of royalties according to the value attributed by the parties to their respective patent claims is

> frequently necessary ***if technical advancement is not to be blocked*** by threatened litigation. If the available advantages are open on reasonable terms to all manufacturers desiring to participate, such interchange may promote rather than restrain competition.

(Emphasis supplied). To sanction unblocking arrangements governing rights under a pioneer invention and its improvements, of course, necessarily implies an endorsement of the underlying right of the innovator's competitor to develop patentable improvements during the life of the pioneer patent.

In addition to consideration of the Constitutional roots of the patent law, therefore, selection of the appropriate balance point — whether fixed by Congress or by the courts — should include consideration of the principles of economic freedom embodied in the antitrust laws and the misuse doctrine which mandate the encouragement of research competition.

Indeed, fostering and increasing research competition has been an important enforcement concern at least since the promulgation of the 1995 Licensing Guidelines:[26]

> An innovation market consists of the research and development directed to particular new or improved goods or processes, and the close substitutes for that research and development. The close substitutes are research and development efforts, technologies, and goods that significantly

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[26] Department of Justice and Federal Trade Commission Antitrust Guidelines for the Licensing of Intellectual Property 1.0 (April 6, 1995) <http://www.usdoj.gov/atr/public/guidelines/ipguide.htm> (last visited 2/20/05). For convenience the Department of Justice and the Federal Trade Commission are referred to herein as "DOJ" and "FTC", respectively.

> constrain the exercise of market power with respect to the relevant research and development, for example by limiting the ability and incentive of a hypothetical monopolist to retard the pace of research and development.

As a number of witnesses at the FTC/DOJ interface hearings stressed,[27] research competition is important in developing countervailing power by competitors of an innovator through development of improvements and alternatives to the claims of the innovator — thus facilitating cross-licensing and pooling arrangements which can make a new technology broadly available even before expiration of the pioneering patents.

The alternative to permitting such research competition would be to reserve to the first patentee not only the right to exclude from the practice of his innovative claims during the "limited times" fixed by Congress, but also the sole right to develop improvements during that same term. Such a rule clearly would contravene the fundamental principles reflected in numerous antitrust and misuse decisions of this Court.

Finally, even the court of appeals majority recognized that the FDA exemption represented a remedial response to *Roche v. Bolar*, in the sense that it "sought to insure that a patentee's rights did not *de facto* extend past the expiration of the patent term". This Court, of course, resolved a similar concern under Article I, Section 8 when it proscribed post-expiration royalties under the misuse doctrine in *Brulotte v. Thys Co.*, 379 U.S. 29 (1964).

The power of Congress to legislate a specific statutory infringement exemption for a particular industry has never been questioned. The roots of that power derive directly from

[27] FTC/DOJ, Public Hearings, Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy (2002) <http://www.ftc.gov/opp/ intellect/index.htm>.

Article I, Section 8 of the Constitution as well as from the patent, antitrust and misuse decisions of this Court which bear upon research competition.[28]

II. THERE IS NO NEED TO CONSIDER APPLICATION OR CONSTRUCTION OF THE COMMON LAW EXEMPTION ON THE RECORD PRESENTLY BEFORE THIS COURT

The Association does not believe that reversal need or should require consideration of the common law exemption. Accordingly, the NYIPLA also endorses the argument set forth in the Professors' Brief to the effect that the Court should decline to construe the common law exemption on the present record — particularly in view of the fact that the trial court's ruling on the common law exemption is not before this Court. P.A. 6a, n.2.

The Association also agrees with the Professors' Brief that "Section 271(e)(1) and the traditional experimental use exemption are of independent scope" and that:

> The scope of the traditional experimental use exemption is also not fairly included within the question presented to the Court and is of such importance that it should be considered [in some other case in which it *is* fairly presented] on its own merits.

Id. (Bracketed material and emphasis supplied).

As the foregoing discussion in Point I.B should make clear, however, the Association does not agree that Section 271(e)(1) and the common law research exemption "stem from independent policy concerns" (*id*.), or that either is the product of a "different provenance" (*id*. at 4). The genius of

[28] As will be discussed briefly, *infra*, the legitimacy of the common law or research exemption derives from the same theoretical underpinnings.

Justice Story's initial perception lay in (a) his implicit recognition both of the inherent tension between the twin directives of Article I, Section 8 that are reflected in the patentee's right to exclude based upon her bargain and the public's right to the "progress of science"; and (b) his explicit recognition that the solution lay in reading the word "commercial" into the infringement provision of the 1793 Patent Act — which, like Section 271(a) today, did not actually contain that language.[29] For Justice Story, the touchstone for the determination of what uses were commercial was whether such use was made "with an intent to use for profit" and thus "deprive the owner of the lawful rewards of his discovery" during the period of exclusivity. *Sawin v. Guild*, 21 F. Cas. 554, 555 (C.C.D. Mass. 1813).

In response to *Roche v. Bolar*, Congress felt it necessary to define the appropriate scope of the exemption in this industry as experimentation "reasonably related" to submissions to the FDA. That does not mean, however, that the Constitutional and policy roots of the common law

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[29] The court of appeals majority noted that the term "experimental" does not appear in the Patent Act, and suggested that nothing in Section 271(a) supported an interpretation of that statute to exempt a non-commercial use or manufacture from infringement liability. P.A. 6a. Justice Story's determination that such language must be inferred, however, represents an almost exact parallel with Chief Justice White's holding that the word "unreasonable" must be read into the Section 1 of the Sherman Act. *Standard Oil Co. v. United States*, 221 U.S. 1, 60-70 (1911). *See*, *also*, *Business Elecs. Corp. v. Sharp Elecs. Corp.*, 485 U.S. 717, 723 (1988); *Northwest Wholesale Stationers v. Pacific Stationery & Printing Co.*, 472 U.S. 284, 289 (1985) ("[E]very commercial agreement restrains trade. Whether this action violates § 1 of the Sherman Act depends on whether it is adjudged an *unreasonable* restraint."); *NCAA v. Board of Regents*, 468 U.S. 85, 98 (1984). Coincidentally, both Justice Story and Chief Justice White perceived the need for such judicial inferences approximately twenty years after Congress enacted the respective statutes at issue – the Patent Act of 1793 and the Sherman Act of 1890.

research exemption were any different from those under which Section 271(e)(1) was enacted by Congress.

This case involves the fourth decision within the last twenty years in which the court below has significantly narrowed the scope of a research exemption.[30] Unquestionably, those decisions have created significant problems for other industries as well as for the upstream operations of biomedical research.

On this record, however, where the upstream research activities of Merck and Scripps were not before the jury, the common law research exemption need not and should not be addressed.

III. ON THE RECORD PRESENTLY BEFORE THIS COURT, THERE ALSO IS NO NEED TO RESOLVE ANY CONFLICT BETWEEN THE FDA EXEMPTION AND THE PRESUMED RIGHT OF PATENTEES TO RECOVER ROYALTIES FOR COMMERCIAL LABORATORY USE OF HYPOTHETICAL CLAIMS ADDRESSED TO RESEARCH SCREENING, DIAGNOSTIC PROCEDURES OR FUNDAMENTAL BIOTECHNICAL PROCESSES

This is not a case in which the court of appeals majority's putative concern with patents containing claims addressed to "screening" inventions or biotechnology "tool" patents need be addressed.

First, each of the three cyclical candidate compounds from the narrow subgenus of the EMD6 lead compound and its derivatives had been identified prior to the 1994-1998 preclinical research which the jury considered.

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[30] In addition to *Roche v. Bolar*, the other cases preceding the decision below are *Madey v. Duke Univ.*, 307 F.3d 1351 (Fed. Cir. 2002), and *Embrex, Inc. v. Serv. Eng'g Corp.*, 216 F.3d 1343 (Fed. Cir. 2000). Those cases are adequately discussed in the Professors' Brief and will not be treated here.

Second, none of the claims asserted against Merck are Category D biotechnology "tool" claims, Category E diagnostic claims, or Category F therapeutic "screening" claims. Indeed, none of the patents contain any such claim.

Claims of appropriate specificity can easily be drafted whenever the teaching of a specification is sufficient to support such a claim. Indeed, many well-known patents can be cited as containing examples of Category D claims directed to fundamental biotechnology methods or "tools",[31] Category

[31] *See*, *e.g.*, Mullis *et al*. United States Patent No. 4,683,195, directed to the use of the polymerase chain reaction (PCR) to detect specific DNA sequences. Claim 1 reads: A process for detecting the presence or absence of at least one specific nucleic acid sequence in a sample containing a nucleic acid or mixture of nucleic acids, or distinguishing between two different sequences in said sample, wherein the sample is suspected of containing said sequence or sequences, which process comprises: (a) treating the sample with one oligonucleotide primer for each strand of each different specific sequence, under hybridizing conditions such that for each strand of each different sequence to which an oligonucleotide primer is hybridized an extension product of each primer is synthesized which is complementary to each nucleic acid strand, wherein said primer or primers are selected so as to be sufficiently complementary to each strand of each specific sequence to hybridize therewith such that the extension product synthesized from one primer, when it is separated from its complement, can serve as a template for synthesis of the extension product of the other primer; (b) treating the sample under denaturing conditions to separate the primer extension products from their templates if the sequence or sequences to be detected are present; (c) treating the sample with olignonucleotide primers such that a primer extension product is synthesized using each of the single strands produced in step (b) as a template, resulting in amplification of the specific nucleic acid sequence or sequences if present; (d) adding to the product of step (c) a labeled oligonucleotide probe for each sequence being detected capable of hybridizing to said sequence or a mutation thereof; and (e) determining whether said hybridization has occurred.

E claims directed to specialized assays for diagnostic use,[32] and Category F claims directed to specialized assays for the "screening" of potential materials for specific therapeutic or diagnostic applications.[33]

Absent such specific claims, a reviewing court will not be able to address such issues as whether the disclosures of the supporting specification are sufficiently detailed to support such claims under Section 112 of the Patent Statute[34] or whether, as in the *SIBIA* case referred to by the court below,[35] they are

[32] *See*, *e.g.*, Wang *et al.* United States Patent No. 5,476,774, directed to a method for determining the amount of a target DNA sequence in a sample of DNA sequences. Claim 5 reads: A kit for the quantitation of a target nucleic acid segment in a biological sample comprising individual containers which provide: a predetermined initial amount of an internal standard nucleic acid segment for quantitation of a target nucleic acid wherein said internal standard binds the same primers as are bound by said target nucleic acid segment; and an oligonucleotide primer pair wherein said primer pair can serve to amplify said internal standard and said target nucleic acid.

[33] *See*, *e.g.*, Young *et al.* United States Patent No. 5,837,479, directed to screening assays for inhibitors of mammalian cyclooxygenase-2. Claim 1 reads: A method for identifying a compound that inhibits prostaglandin synthesis catalyzed by mammalian prostaglandin H synthase-2 (PGHS-2) comprising: (a) contacting a genetically engineered host cell that contains a sequence encoding mammalian PGHS-2 operatively associated with a regulatory sequence that controls gene expression, so that a PGHS-2 gene product is stably expressed by the host cell, with the compound in the presence of a pre-determined amount of arachidonic acid; (b) measuring the conversion of the arachidonic acid to its prostaglandin metabolite; and (c) comparing the amount of arachidonic acid converted by the cells exposed to the test compound to the amount of arachidonic acid converted by control cells that were not exposed to the test compound.

[34] 35 U.S.C. § 112 (2005).

[35] *SIBIA Neurosciences*, *Inc. v. Cadus Pharm. Corp.*, 225 F.3d 1349 (Fed. Cir. 2000). The patent at issue in *SIBIA*, Harpold *et al.* United

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obvious under Section 103.[36] Moreover, in the absence of such claims, in order to find infringement of a broad product claim such as claim 8 of the '525 patent on a "screening" theory, the Court would have to invoke the generalized "uses" language of Section 271(a).

Since none of the patents asserted against Merck contained any Category F "screening" claims and since none of the "screening" experiments carried out by Merck or

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States Patent No. 5,401,629, is another example of a patent containing Category F "screening" claims. This patent is directed to cell-based screening methods useful for the identification of compounds that exhibit agonist and antagonist activity with respect to particular cell surface proteins. Claim 1 reads: A method for identifying compounds that modulate cell surface protein-mediated activity by detecting intracellular transduction of a signal generated upon interaction of the compound with the cell surface protein, comprising: comparing the amount of transcription of a reporter gene or the amount of reporter gene product expressed in a first recombinant cell in the presence of the compound with the amount of transcription or product in the absence of the compound, or with the amount of transcription or product in a second recombinant cell; and selecting compounds that change the amount of transcription of a reporter gene or the amount of reporter gene product expressed in the first recombinant cell in the presence of the compound compared to the amount of transcription or product in the absence of the compound, or compared to the amount of transcription or product in the second recombinant cell, wherein: the cell surface protein is a surface receptor or ion channel; the first recombinant cell contains a reporter gene construct and expresses the cell surface protein; the second recombinant cell is identical to the first recombinant cell, except that it does not express the cell surface protein; and the reporter gene constructs contains: (a) a transcriptional control element that is responsive to the intracellular signal that is generated by the interaction of an agonist with the cell surface protein; and (b) a reporter gene that encodes a detectable transcriptional or translational product and that is in operative association with the transcriptional control element.

[36] 35 U.S.C. § 103 (2005).

Scripps were ever presented to the jury, it would be difficult to hypothesize a less appropriate setting for determination of such an important issue of first impression.

CONCLUSION

For all the foregoing reasons, the ruling of the court of appeals should be reversed with directions to enter judgment for Merck on the ground that the FDA exemption insulates the accused experiments from patent infringement liability.

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