EXHIBIT 3

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ICOS'S STATEMENT OF ISSUES OF LAW AND FACT

ICOS submits the following statements of law and fact that are at issue in this case, and a citation of authorities upon which it relies, pursuant to Local Rule 16.3(c)(4)-(5).

I. STATEMENT OF THE CASE

Vanderbilt brought this action under 35 U.S.C. § 256 to add three of its employees (Drs. Corbin, Francis, and Konjeti) ("the Vanderbilt Scientists") as co-inventors on the '006 and '329 patents ("the patents-at-issue"). The inventions claimed in the patents-at-issue were made by Dr. Alain Daugan, a medicinal chemist who worked at Laboratoires Glaxo S.A. in Les Ulis, France. Vanderbilt argues that its scientists should be listed with Dr. Daugan as co-inventors on the patents-at-issue because the chemical compounds claimed in the patents reflect three "rules" that Vanderbilt argues were conveyed in a research agreement that Vanderbilt entered into with Glaxo in 1992 or were reflected in compounds that the Vanderbilt Scientists sent to Glaxo for testing in late 1992 and early 1993.

Vanderbilt's theory of co-inventorship fails because, *inter alia*, (i) as both Vanderbilt and its scientists have already admitted in this case, they were completely unaware of the claimed compounds until they saw Dr. Daugan's issued patents in 2001, were completely unaware that Dr. Daugan even existed until they saw his name on the issued patents, and were completely unaware that the claimed inventions were made at Glaxo until they saw Dr. Daugan's scientific articles discussing those inventions in 2003; (ii) Dr. Daugan was completely unaware of the existence of the Vanderbilt Scientists, of the nature of their work, of their compounds or the PDE-5 testing results for those compounds, of the 1992 research agreement, and of Vanderbilt's purported "rules," and (iii) neither the 1992 research agreement nor the compounds that Vanderbilt sent to Glaxo for testing identified the three "rules."

II. FACTUAL BACKGROUND

A. Vanderbilt's work

Vanderbilt bases its claim of co-inventorship on work that the Vanderbilt Scientists did under two research agreements that they entered into with Glaxo[1] in 1989 and 1992, respectively, to study certain biological reactions involved in blood vessel relaxation. Under these agreements, the Vanderbilt Scientists synthesized certain "cGMP" and "IBMX" compounds, and in late 1992 and early 1993, they sent those compounds to Dr. Pascal Grondin, a biologist at Glaxo's research facility in Les Ulis, France, so that Dr. Grondin could test whether those compounds could inhibit certain enzymes called "phosphodiesterases" ("PDEs"), including the enzyme known as "PDE-5." Dr. Grondin tested those compounds against both PDE-5 and other PDE enzymes, and sent the results back to the Vanderbilt Scientists.

B. Dr. Daugan's inventions

Independent of anything that the Vanderbilt Scientists were doing, scientists at Glaxo in Les Ulis were attempting to create pharmaceutical compounds that could be useful for treating cardiovascular diseases such as hypertension. Those scientists knew that the inhibition of PDE-5, and the resulting changes in the level of cGMP (cyclic guanosine monophosphate) in certain cells in blood vessels, could relax those blood vessels. The Glaxo scientists therefore believed

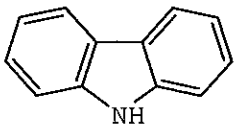
[1] Vanderbilt named ICOS as the defendant in this action because Glaxo assigned the patents-at-issue to ICOS in 1997. ICOS is a small biopharmaceutical company in Bothell, Washington that began operations in 1990. In 1991, ICOS entered into a collaboration agreement with Glaxo to jointly develop drugs to treat several diseases including cardiovascular diseases like hypertension. In 1997, ICOS purchased Glaxo's compounds, related know-how, and intellectual property covering certain aspects of the subject matter of the collaboration, including all rights in the inventions claimed in the '006 and '329 patents. In 1998, ICOS agreed with Eli Lilly and Company to establish Lilly ICOS LLC ("Lilly ICOS"), a joint venture to develop and globally commercialize Cialis® (tadalafil), a compound covered by the patents-at-issue, as an oral therapeutic agent for the treatment of impotence and other potential indications. The FDA approved Cialis® for the treatment of impotence in 2003. On January 29, 2007, Eli Lilly acquired ICOS.

that compounds which strongly inhibited PDE-5 (and did not strongly inhibit other "PDE" enzymes) might be effective drugs for treating hypertension.

By 1992, scientists working in the field knew that a number of chemical compounds could inhibit PDE-5. Some of these compounds, such as a compound called "zaprinast," were known to be potent and selective PDE-5 inhibitors. Other compounds, such as "IBMX," were weak inhibitors of PDE-5 and also inhibited other PDE enzymes (*i.e.*, they were not "specific" inhibitors of PDE-5). The Glaxo scientists in Les Ulis used several of the known prior-art PDE-5 inhibitor compounds, such as zaprinast (but not IBMX), as starting points with the goal of developing derivative compounds that would be more potent and more selective in inhibiting PDE-5, and thus potentially more effective in treating hypertension.

For both scientific and commercial reasons, the Glaxo chemists also set out to find new classes of compounds that inhibited PDE-5, *i.e.*, compounds unrelated in structure to the known prior-art compounds like zaprinast. In early 1992, the leader of the medicinal chemistry group in Les Ulis, Dr. Richard Labaudiniere, became aware of reports in the scientific literature that several compounds categorized as "beta-carbolines" could alter cGMP levels in, and relax, blood vessels. This suggested that these compounds might be PDE-5 inhibitors and might be good starting points to develop derivative compounds for treating hypertension.

Dr. Labaudiniere used the basic beta-carboline structure of these prior-art compounds (shown below) to search Glaxo's existing collection of compounds to see if Glaxo had made any such compounds. The search of Glaxo's compound collection revealed several compounds that contained a beta-carboline-type backbone structure (often referred to as a "scaffold"). Dr. Labaudiniere had these Glaxo compounds tested to see if they inhibited PDE-5. Some of these existing Glaxo compounds were found to be fairly potent PDE-5 inhibitors.

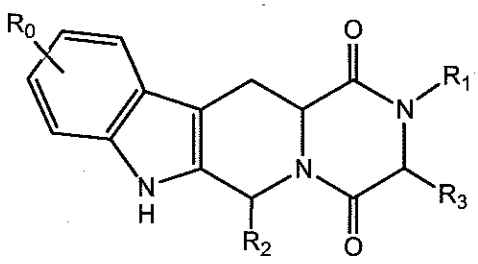


"beta-carboline" scaffold

Dr. Labaudiniere then asked Dr. Alain Daugan, one of the Glaxo medicinal chemists working on the PDE-5 project, to pursue the modification of these "lead" beta-carboline compounds (by changing their chemical structures) to yield derivative compounds that would satisfy the overall goal of the project: compounds that were more active against PDE-5, more specific for PDE-5 than for other types of PDE enzymes (in particular PDE-1 and PDE-6), and capable of lowering blood pressure in animals.

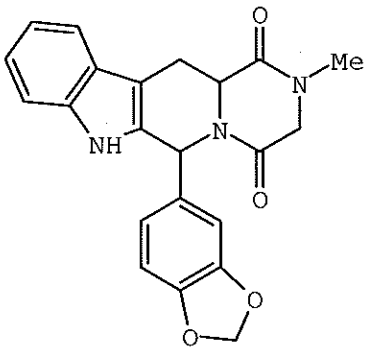
Over the next year, Dr. Daugan carried out a comprehensive medicinal chemistry project in which he modified these lead beta-carboline compounds to yield many dozens of derivatives and analogs, both by directly modifying the scaffold structure of the compounds and by incorporating various chemical groups onto that scaffold. The biologists working on the PDE-5 project in Les Ulis tested Dr. Daugan's new compounds for activity against a PDE-5 enzyme purified from cow lungs; those compounds found to be most potent and selective were then tested to determine whether they were active *in vitro* (*i.e.*, whether they altered cGMP levels in smooth muscle cells growing in culture), and, if so, whether they were effective *in vivo* (*i.e.*, whether they reduced blood pressure in live animals).

This effort eventually led to the discovery of a group of very potent, selective, and orally effective PDE-5 inhibitors. Each of these compounds shared the same basic structure, which is described as "Formula (I)" in the patents-at-issue:



Formula (I) of '329 and '006 patents

The structure of the most effective of these inhibitors, the compound now known as "tadalafil," is shown below:



Tadalafil

The most potent, selective, and orally effective PDE-5 inhibitor compounds invented by Dr. Daugan during this project (including tadalafil) were described and claimed in a U.K. patent application that Glaxo filed on behalf of Dr. Daugan in January 1994. That application eventually led to the '006 patent-at-issue.

Although Dr. Daugan and his colleagues were focused on developing PDE-5 inhibitors for treating cardiovascular disorders such as hypertension, by late 1991 it was apparent from published scientific papers that inhibitors of PDE-5 (for example, zaprinast) could enhance the relaxation of a tissue in the penis called the "corpus cavernosum," could thereby enhance penile erection, and therefore might be useful in treating male impotence. Such papers continued to be published through 1994 and beyond. And in December 1994, an international patent application

filed by Pfizer was published which disclosed the use of PDE-5 inhibitors to treat male impotence. Accordingly, in July 1995 Glaxo filed another U.K. patent application on Dr. Daugan's behalf describing and claiming the use of some of his PDE-5 inhibitor compounds to treat male impotence. This application eventually led to the '329 patent-at-issue.

C. The patents-at-issue

The '006 patent contains claims directed to certain chemical compounds and methods for making those compounds. One of those compounds is "tadalafil," which is the active ingredient in the prescription impotence drug Cialis®. The '329 patent, on the other hand, contains claims directed to pharmaceutical compositions containing some of those compounds (including tadalafil), and methods of using those compounds to treat impotence, also called male erectile dysfunction ("MED"). The '006 and '329 patents list Dr. Daugan as the sole inventor.

1. The '006 patent

The '006 patent discloses and claims a novel class of pharmaceutical compounds, as well as methods for manufacturing those compounds. As noted above, one of those compounds is tadalafil (tadalafil is specifically claimed in, *e.g.*, claim 13 of the '006 patent, at column 52, lines 13-15). The '006 patent describes these compounds as being potent and selective inhibitors of an enzyme referred to as a "cGMP-specific phosphodiesterase," which it also refers to as "PDE V." *See* '006 patent at column 1, lines 8-15. The '006 patent teaches that these compounds alter cGMP levels in cells, and therefore can be therapeutically useful in a number of disease states, such as congestive heart failure. *See id.* at, *e.g.*, column 5, lines 9-35.

However, it is important to remember that the claims in the '006 patent for which Vanderbilt alleges its scientists should be considered co-inventors (*i.e.*, claims 1-8, 10, 12, and 13) say ***nothing*** about whether the claimed compounds inhibit PDE-5, or about any of the other biological functions of the claimed compounds. The claims-at-issue in the '006 patent are

directed to the chemical compounds *per se* (or, in the case of claim 12, to pharmaceutical compositions). Those compounds are delineated in the claims by reciting the specific combination of their four-ring beta-carboline-based scaffold structure (designated "Formula 1") with the specific chemical groups (commonly referred to as "substituents" or "side chains") attached to that scaffold structure. *See, e.g.*, '006 patent at column 49, lines 24-67.

2. The '329 patent

The '329 patent also describes tadalafil and a related class of compounds as "potent and selective inhibitors of . . . cGMP specific PDE [*i.e.*, PDE-5]." However, unlike the '006 patent, the '329 patent discloses that these compounds are not only useful for diseases like congestive heart failure, but also for "the treatment of impotence." *See* '329 patent at column 1, lines 7-10. The '329 patent explains that "[a]s a consequence of the selective PDE V [PDE-5] inhibition exhibited by compounds of the present invention, the subject compounds can elevate cGMP levels, which in turn can mediate relaxation of the corpus cavernosum tissue and consequent penile erection." *See* '329 patent at column 3, lines 31-35.

Four of the claims-at-issue in the '329 patent (claims 3, 6, 7, and 11) are directed to pharmaceutical compositions containing some of the specific chemical compounds claimed in the '006 patent (including tadalafil). The other claims-at-issue in the '329 patent (claims 1, 2, 5, 8-10, 12, and 15-21) are method claims directed to using those pharmaceutical compositions containing those specific chemical compounds, or those specific chemical compounds themselves, to treat impotence.

III. CITATION OF AUTHORITIES RELIED UPON BY ICOS

The patent statute, 35 U.S.C. § 256, provides for district court jurisdiction over inventorship disputes. 35 U.S.C. § 256 (2000) provides:

> The error of omitting inventors or naming persons who are not inventors shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section. The court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the Director shall issue a certificate accordingly.

Inventorship is a question of law. *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998).

Upon the issuance of a patent, it is presumed that there are no inventors other than those listed on the patent. *Medtronic Vascular, Inc. et al. v. Adv. Cardiovascular Systems, Inc. et al.*, 2005 WL 46553 (D. Del. January 5, 2005) (Robinson, J.) at *5 (citing *Bd. of Educ. v. American Bioscience, Inc.*, 333 F.3d 1330, 1337 (Fed. Cir. 2003)); *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998).

A party challenging this presumption must prove, by clear and convincing evidence, that they significantly contributed to the conception of the invention. *Medtronic Vascular, Inc. et al. v. Adv. Cardiovascular Systems, Inc. et al.*, 2005 WL 46553 (D. Del. January 5, 2005) (Robinson, J.) at *5 (citing *Bd. of Educ. v. American Bioscience, Inc.*, 333 F.3d 1330, 1337 (Fed. Cir. 2003)); *Eli Lilly and Co. v. Aradigm Corp.*, 376 F.3d 1352 (Fed. Cir. 2004); *Garrett Corp. v. United States*, 422 F.2d 874, 880 (Ct. Cl. 1970). The burden to prove co-inventorship is "heavy." *Hess v. Advanced Cardiovascular Sys., Inc.*, 106 F.3d 976, 980 (Fed. Cir. 1997).

Conception is "'the touchstone of inventorship." *Bd. of Educ. v. American Bioscience, Inc.*, 333 F.3d 1330, 1337 (Fed. Cir. 2003) (citing *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998) (quoting *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1227-28 (Fed. Cir. 1994)).

Conception occurs with "the 'formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention' [so that] 'only ordinary skill would be necessary to reduce the invention to practice.'" *Medtronic Vascular, Inc. et al. v. Adv.*

Cardiovascular Systems, Inc. et al., 2005 WL 46553 (D. Del. January 5, 2005) (Robinson, J.) at *5 (citing *Ethicon, Inc. v. United States Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998); *Borroughs Wellcome Co. v. Barr Lab, Inc.*, 40 F.3d 1223, 1227-28 (Fed. Cir. 1994); and *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986)); *Bd. of Educ. v. American Bioscience, Inc.,* 333 F.3d 1330, 1338 (Fed. Cir. 2003) (quoting 1 ROBINSON ON PATENTS 532 (1890)).

"An idea is sufficiently 'definite and permanent' when 'only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation.'" *Bd. of Educ. v. American Bioscience, Inc.,* 333 F.3d 1330, 1338 (Fed. Cir. 2003) (citing *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998), and quoting *Burroughs Wellcome*, 40 F.3d at 1228).

With respect to co-inventorship of specifically claimed chemical compounds, "conception does not occur unless one has a mental picture of the structure of the chemical . . . or whatever characteristics sufficiently distinguish it. It is not sufficient to define it solely by its principal biological property . . . ." *Bd. of Educ. v. American Bioscience, Inc.,* 333 F.3d 1330, 1340 (Fed. Cir. 2003) (citing *Amgen Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 1206 (Fed. Cir. 1991)).

"Having in mind specific portions of a claimed compound is not the same as conceiving the compound with all of its components. One must have a conception of the specific compounds being claimed, with all of their component substituents . . . ." *Bd. of Educ. v. American Bioscience, Inc.,* 333 F.3d 1330, 1340 (Fed. Cir. 2003).

Joint invention occurs when more than one individual significantly contributes to the conception of a solution to a problem and it is this solution that becomes the subject matter of a

patent claim. *Medtronic Vascular, Inc. et al. v. Adv. Cardiovascular Systems, Inc. et al.*, 2005 WL 46553 (D. Del. January 5, 2005) (Robinson, J.) at *5 (citing 35 U.S.C. § 116 (2004); *Fina Oil and Chem. Co. v. Ewen*, 123 F.3d 1466, 1476 (Fed. Cir. 1997); and CHISUM ON PATENTS § 2.02[2].

"Because co-inventors need not 'make a contribution to the subject matter of every claim of the patent,' 35 U.S.C. § 116, inventorship is determined on a claim-by-claim basis. . . . The second step is then to compare the alleged contributions of each asserted co-inventor with the subject matter of the properly construed claim to then determine whether the correct inventors were named." *Trovan v. Sokymat SA*, 299 F.3d 1292, 1302 (Fed. Cir. 2002) (internal citations omitted).

General knowledge regarding the anticipated biological properties of groups of complex chemical compounds is insufficient to prove conception with respect to specifically claimed chemical compounds. *Bd. of Educ. v. American Bioscience, Inc.,* 333 F.3d 1330, 1340 (Fed. Cir. 2003) (citing *Amgen Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 1206 (Fed. Cir. 1991)).

An alleged co-inventor's testimony stating that he contributed to the conception at issue is not, by itself, enough to support a finding of co-inventorship. *Medtronic Vascular, Inc. et al. v. Adv. Cardiovascular Systems, Inc. et al.*, 2005 WL 46553 (D. Del. January 5, 2005) (Robinson, J.) at *5 (citing *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1461 (Fed. Cir. 1998); *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994).

Rather, proof of conception requires "corroborating evidence of a contemporaneous disclosure that would enable one skilled in the art to make the invention." *BJ Services Co. v. Halliburton Energy Services, Inc.*, 338 F.3d 1368, 1373 (Fed. Cir. 2003) (citing *Burroughs Wellcome Co. v. Barr Labs. Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994)).

To be a joint inventor, one must have had "some open line of communication during or in temporal proximity to [the named inventor's] inventive efforts . . . ." *Cook Biotech, Inc. et al. v. ACell Inc. et al.*, 460 F.3d 1365, 1373 (Fed. Cir. 2006) (quoting *Eli Lilly & Co. v. Aradigm*, 376 F.3d 1352, 1358-59 (Fed. Cir. 2004)). Disclosure of information to a company is not sufficient to establish that information was disclosed to an employee inventor associated with the company. *Beall v. Ormsby*, 154 F.2d 663, 665 (C.C.P.A. 1946).

Joint inventorship requires that a co-inventor do more than simply explain "concepts that are well known and the current state of the art." *Medtronic Vascular, Inc. et al. v. Adv. Cardiovascular Systems, Inc. et al.*, 2005 WL 46553 (D. Del. January 5, 2005) (Robinson, J.) at *5 (quoting *Fina Oil and Chem. Co. v. Ewen*, 123 F.3d 1466, 1476 (Fed. Cir. 1997)).

"One who simply provides the inventor with well-known principles or explains the state of the art without ever having 'a firm and definite idea' of the claimed combination as a whole does not qualify as a joint inventor." *Bd. of Educ. v. American Bioscience, Inc.*, 333 F.3d 1330, 1338 (Fed. Cir. 2003) (quoting *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998)).

A contribution to conception is not sufficiently significant to qualify one as a co-inventor if that contribution is "too far removed from the real-world realization of an invention." *Eli Lilly & Co. v. Aradigm*, 376 F.3d 1352, 1356 (Fed. Cir. 2004) (citing *Garrett Corp. v. United States*, 422 F.2d 874, 881 (Ct. Cl. 1970) ("One who merely suggests an idea of a result to be accomplished, rather than means of accomplishing it, is not a joint inventor.").

IV. VANDERBILT'S BURDEN TO SHOW CO-INVENTORSHIP

To demonstrate that the Vanderbilt scientists should be listed as co-inventors on the '006 and/or '329 patents, Vanderbilt must show by clear-and-convincing evidence[2] that, at the least:

> (1) the Vanderbilt scientists contributed to the conception of a specific chemical compound recited in a claim-at-issue in the '006 patent (or of a specific method recited in a claim-at-issue in the '329 patent); and
>
> (2) the Vanderbilt scientists' contribution to the conception of a specific chemical compound recited in the claim-at-issue in the '006 patent (or of a specific method recited in a claim-at-issue in the '329 patent) was communicated to Dr. Daugan; and
>
> (3) any such information communicated to Dr. Daugan by the Vanderbilt scientists constituted a significant contribution to the conception of a specific chemical compound recited in a claim-at-issue in the '006 patent (or of a specific method recited in the claims-at-issue in the '329 patent); and
>
> (4) the Vanderbilt scientists had a conception of a specific chemical compound recited in a claim-at-issue in the '006 patent or in the '329 patent, with all of its component substituents; and
>
> (5) the Vanderbilt scientists conceived the use of at least one of the claimed compounds to treat male impotence, as recited in the claims in the '329 patent.

The record in this case does not contain any evidence (much less evidence sufficient to sustain Vanderbilt's clear-and-convincing burden) that would allow Vanderbilt to prove ***any*** of these requirements. Vanderbilt cannot prove co-inventorship with only theory and speculation. The only "evidence" Vanderbilt will be able to offer at trial will consist of uncorroborated

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[2] In its Pre-Trial Submissions, Vanderbilt argues that its burden of proof to prove co-inventorship should be a preponderance of the evidence. It is not. As the Federal Circuit, this Court, and other courts have repeatedly held, the burden to prove that the listed inventorship on a patent is incorrect is by clear-and-convincing evidence. *Medtronic Vascular, Inc. et al. v. Adv. Cardiovascular Systems, Inc. et al.*, 2005 WL 46553 (D. Del. January 5, 2005) (Robinson, J.) at *5 (citing *Bd. of Educ. v. American Bioscience, Inc.*, 333 F.3d 1330, 1337 (Fed. Cir. 2003)); *Eli Lilly and Co. v. Aradigm Corp.*, 376 F.3d 1352 (Fed. Cir. 2004); *Hess v. Advanced Cardiovascular Sys., Inc.*, 106 F.3d 976, 980 (Fed. Cir. 1997) (the burden to prove co-inventorship is "heavy"); and *Garrett Corp. v. United States*, 422 F.2d 874, 880 (Ct. Cl. 1970). Vanderbilt's reliance on a concurring opinion in the *Aradigm* case is wholly unavailing.

testimony from their scientists that they conceived three "design concepts" or "rules" that they imagine were communicated to Dr. Daugan and that they speculate were used by him to design the compounds recited in the claims of the patents-at-issue. There simply is no evidence that anything relating to such "design concepts" or "rules" was ever communicated to Dr. Daugan, or that he ever used any such information in any of his work. The Vanderbilt Scientists' uncorroborated speculation does not and cannot constitute clear-and-convincing evidence that they made any contribution to the conception of the claimed inventions, much less the significant contribution that is required to prove co-inventorship.[3]

Vanderbilt has already admitted that:

- none of the Vanderbilt Scientists has ever met Dr. Daugan (Vanderbilt Response to ICOS Request for Admission No. 26);
- none of the Vanderbilt Scientists has ever communicated with Alain Daugan (Vanderbilt Response to ICOS Request for Admission Nos. 23-25).

Dr. Corbin and his colleagues confirmed these admissions in their depositions:

> Q. Like I said, I think we may have covered this before. But do you remember ever, ever meeting Alain Daugan anywhere, any time?
>
> THE WITNESS: I don't remember meeting him.
>
> Q. Okay. Do you remember ever seeing him in a meeting?
>
> A. No.
>
> Q. Do you ever -- do you remember ever knowing of his existence prior to this litigation?
>
> A. No.[4]

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[3] *BJ Services Co. v. Halliburton Energy Services, Inc.*, 338 F.3d 1368, 1373 (Fed. Cir. 2003), citing *Price v. Symsek*, 988 F.2d 1187, 1194 (Fed. Cir. 1993).

[4] Corbin Tr. at 260:11-24.

Q. -- were you aware of Alain Daugan's existence in any way in any context at all?

A. No.

Q. And so I take it that you're not aware of any time having communicated in any way with Alain Daugan?

THE WITNESS: I don't remember.

Q. And are you aware that anyone ever passed on anything that you said to Alain Daugan?

A. I don't remember anything, no.

Q. Okay. You're not aware of any instance in which anyone passed on anything that you ever said to Alain Daugan?

A. That's correct.[5]

Q. So you never spoke with anyone, any of the chemists who were working on these beta carboline compounds at Glaxo, France; is that correct?

A. That's correct.[6]

Q. Did you recognize his name, Alain Daugan?

A. No. No, I didn't.

Q. Had you ever heard it before?

A. Not to my knowledge.[7]

Vanderbilt has also already admitted that prior to January 21, 1994 (the date on which Glaxo filed Dr. Daugan's first U.K. application), the Vanderbilt Scientists:

- were not aware of the existence of (or the structure of) any of the compounds claimed in the patents-at-issue (Vanderbilt Response to ICOS Request for Admission Nos. 18 and 19);

[5] Corbin Tr. at 261:14-262:4.

[6] Transcript of Deposition of Sekhar Konjeti ("Konjeti Tr.") at 58:8-11.

[7] Transcript of Deposition of Sharron Francis ("Francis Tr.") at 102:16-19.

- were not aware that anyone at Glaxo had designed or synthesized any of the compounds claimed in the patents-at-issue (Vanderbilt Response to ICOS Request for Admission No. 22);
- were not aware of the chemical structure set out as "Formula 1" in claim 1 of the '006 patent, or any compound containing that structure (Vanderbilt Response to ICOS Request for Admission Nos. 15-17);
- were not aware that anyone at Glaxo had designed or synthesized a compound comprising the structure set out as "Formula 1" in claim 1 of the '006 patent (Vanderbilt Response to ICOS Request for Admission No. 21); and
- were not aware of the existence or structure of tadalafil, or that anyone at Glaxo had designed or synthesized tadalafil (Vanderbilt Response to ICOS Request for Admission Nos. 13, 14, and 19).

Simply put, Vanderbilt has admitted that its scientists did not "have a conception of the specific compounds being claimed, with all their component substituents."[8] And Dr. Corbin himself admitted in his deposition that neither he, Dr. Konjeti, nor Dr. Francis had any conception of the structure of the compounds of the '006 patent until he saw the '006 patent in 2001,[9] and that neither he nor either of his colleagues conceived any method for making any of the compounds claimed in the '006 patent.[10]

It is axiomatic that with regard to inventorship, "the critical question for joint conception is who conceived, as that term is used in the patent law, the subject matter of the claims at

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[8] *Board of Education v. American Bioscience, Inc.*, 333 F.3d 1330, 1340 (Fed. Cir. 2003).

[9] *See, e.g.*, Transcript of Deposition of Jackie Corbin at 251:4-252:1 and 252:16-253:22.

[10] Corbin Tr. at 252:3-15.

issue."[11] Conception is the "formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice."[12] Consequently, awareness of the claimed invention as a whole is necessary for conception by a joint inventor. The Vanderbilt scientists cannot be joint inventors because they did not conceive any of the complete and operative inventions – indeed, as they have admitted, they were not aware of the chemical structure of any of the claimed compounds.

V. THE HOLDING IN *AMERICAN BIOSCIENCE* CONTROLS THIS CASE

The question of whether the Vanderbilt scientists could be co-inventors of any of the compounds recited in any of the claims in the patents-at-issue in this case is directly controlled by the decision of the Court of Appeals for the Federal Circuit in *Board of Education v. American Bioscience, Inc.*, 333 F.3d 1330, 1340 (Fed. Cir. 2003).

In *American Bioscience*, the Federal Circuit was reviewing a decision by the district court in a 35 U.S.C. § 256 case. In the district court, Florida State University ("FSU") obtained a judgment that three scientists (collectively "the ABI inventors") were incorrectly listed as inventors on the patent, which contained claims directed to analogs of the chemical compound generically known as "taxotere," and that three of FSU's scientists should instead have been named as inventors on the patent-at-issue. *Id.* at 1331.

The Federal Circuit reversed the district court judgment of co-inventorship by the three FSU scientists. The FSU scientists had conducted significant research with the naturally occurring anti-cancer agent, taxol. *Id.* at 1332. That research included synthesizing taxol and its

[11] *Ethicon v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998).

[12] *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986).

analogs and looking for analogs that would have increased radiosensitivity (which would make the analogs more effective drugs). *Id.* at 1333-1334.

One of the ABI inventors had actually worked as a research assistant in the laboratory of one of the FSU scientists, where he learned the methods of synthesizing taxol that he later used to synthesize the taxotere compounds claimed in the patent-at-issue. *Id* at 1339. That ABI inventor had also learned about another compound ("PNIP") from the FSU scientists. PNIP was the most effective taxol analog, and differed only slightly from one of the three taxotere compounds claimed in the patent-at-issue. *Id.* at 1338-1339.

Despite the similarities between the claimed taxotere compounds developed by the ABI scientists and the taxol compounds developed by the FSU scientists, the similarity of their methods of manufacture, the similarity in their biological activities, and the fact that the ABI inventors knew about, and even participated in, the research work of the FSU scientists on the taxol compounds, the Federal Circuit held that none of the FSU scientists should be named as co-inventors on the patent-at-issue claiming the taxotere compounds. *Id.* at 1342.

The Federal Circuit held that even though the basic structure of the taxol compounds was virtually identical to that of the claimed taxotere compounds, and even though specific portions of the two series of compounds were identical, the FSU scientists' work with the taxol compounds was not sufficient to qualify the FSU scientists as co-inventors of the taxotere compounds because the FSU scientists had never had a mental picture of the structure of any of the three compounds claimed in the ABI patent, with all their component substituents. *Id.* at 1340 ("Having in mind specific portions of a claimed compound is not the same as conceiving the compound with all of its components. One must have a conception of the specific compounds being claimed, with all of their component substituents.").

Moreover, the fact that the FSU scientists had developed the methods that the ABI inventors later used in manufacturing the claimed compounds was not relevant to the inventorship issue, because the claims at issue were directed to the compounds *per se*, not to their method of manufacture. *Id.* at 1342 ("[O]nly ABI's inventors were in possession of both the structure of the claimed compounds and an operative method of making those compounds. The fact that similar compounds had been made at FSU in the past by using essentially the same method is of no consequence, because neither that method nor those similar compounds themselves are claimed in the [patent-at-issue].").

And even though one of the ABI inventors knew about the FSU scientists' discovery that "PNIP was the best dual functional radiosensitizer among the taxol analogs," and even though the ABI scientists' choice of side chains for the claimed taxotere compounds was informed by their conversations with the FSU scientists "regarding the efficacy of PNIP," that did not make the FSU scientists co-inventors of the claimed compounds. *Id* at 1342 ("Although [the ABI inventor's] choice of side chains may have been informed by his earlier conversations with [the FSU scientist] regarding the efficacy of PNIP, that alone does not make [the FSU scientist] a coinventor of the claimed compounds."). It was also significant that those side chains were not invented by the FSU scientists but rather were known in the prior art. *Id.* at 1341 ("the . . . side chains of those compounds did not originate in FSU's laboratories, but are common branched alkyl groups. . . . and there is no serious dispute that the nitrophenyl substituent was also in the prior art.").

Thus, as the *American Bioscience* court confirmed, to be a co-inventor on a patent claiming specific chemical compounds, "[h]aving in mind specific portions of a claimed compound is not the same as conceiving the compound with all of its components. One must

have a conception of the specific compounds being claimed, with all of their component substituents . . . ." *American Bioscience*, 332 F.3d at 1340.

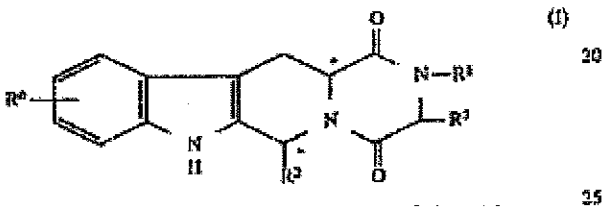
A. Under *American Bioscience*, the Vanderbilt scientists are not co-inventors of the compound and composition claims as a matter of law

Vanderbilt says that its three scientists made "independent conceptual contributions" to the inventions of claims 1-8, 10, and 12-13 in the '006 patent and claims 1-3, 5-12, and 15-21 in the '329 patent. But the holding in *American Bioscience* establishes that even if the Court were to accept all of Vanderbilt's factual assertions as true, the purported "contributions" of the Vanderbilt scientists still would not meet the legal requirements for co-inventorship of the compounds and methods claimed in the patents-at-issue here.

The claims-at-issue in the '006 patent recite very specific chemical compounds *per se*. The claims-at-issue are *not* directed to methods of finding those chemical compounds, or to methods for making those compounds, or to methods for testing those compounds, or to the biological activities of those compounds (such as inhibition of PDE-5).

It is axiomatic in U.S. patent law, as confirmed in *American Bioscience*, that one cannot be a co-inventor of a chemical compound unless one was aware of the complete structure of the compound, and of at least one way to make it, at the time that patent application was filed. *Id.* at 1342. As the '006 patent makes clear (*see, e.g.,* column 1 at lines 16-25), tadalafil and the other chemical compounds that Dr. Daugan invented, described and claimed in that patent (and in the '329 patent) all share the common beta-carboline-based scaffold structure shown below:

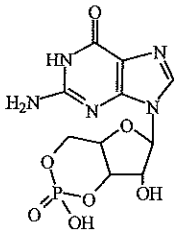
Thus, according to a first aspect, the present invention provides compounds of formula (I)



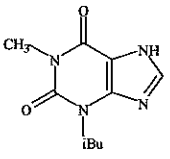
There is no dispute that in January 1994, when Dr. Daugan filed his first patent application that led to the patents-at-issue, the Vanderbilt scientists were not aware that Dr. Daugan was working with any chemical compound containing this four-ring structure. Vanderbilt has never alleged, and cannot allege, otherwise. Moreover, because they were not aware of the structure(s) of any of the claimed compounds, the Vanderbilt scientists certainly could not have communicated anything about such structure(s) to Dr. Daugan.

Under the law regarding co-inventorship of chemical compounds set out in *American Bioscience*, these facts are dispositive of Vanderbilt's claims in this case.

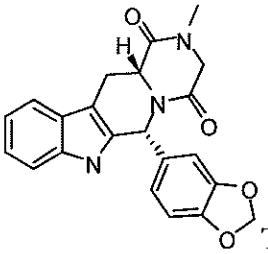
The taxotere analogs claimed in *American Bioscience* were extremely similar in structure to the taxol compounds developed by the FSU scientists, yet the Federal Circuit held that was not sufficient to support co-inventorship by the FSU scientists. The situation is even more pronounced here: the cGMP and IBMX compounds that the Vanderbilt scientists were working on are in no way similar to the claimed beta-carboline compounds. This can easily be seen by simply comparing their structures as shown below:



cGMP



IBMX



Tadalafil

Consequently, the Vanderbilt scientists' work in modifying the prior-art cGMP and IBMX compounds (and their communication of their results to Dr. Grondin at Glaxo) cannot support Vanderbilt's theory that its scientists played any part in the conception of tadalafil or the other compounds claimed in the patents-at-issue here.

Vanderbilt has asserted that Dr. Daugan selected certain substituents for tadalafil and his other claimed beta-carboline compounds because the Vanderbilt scientists had communicated to Glaxo that those same substituents could increase the potency of cGMP and IBMX compounds against PDE-5. The evidence in this case shows unequivocally that Vanderbilt's assertion is not true. But even if it were, it does not support Vanderbilt's case. Just as FSU's argument about the taxol and taxotere compounds having the same "side chains" was rejected in *American Bioscience*, Vanderbilt cannot establish co-inventorship here even if tadalafil and the other compounds claimed in the patents-at-issue had some of the same substituents as the cGMP and IBMX analogs allegedly conceived by the Vanderbilt scientists (which they do not).

In short, every factual allegation raised by Vanderbilt is of the same type as, but is factually weaker than, those rejected by the Federal Circuit in *American Bioscience*. Therefore, there is no factual or legal basis on which the Vanderbilt scientists could be named as co-inventors of any of the chemical compounds recited in claims 1-8, 10, 12, and 13 in the '006 patent and claims 3, 6, 7, and 11 in the '329 patent.

B. The Vanderbilt scientists are not co-inventors of the method-of-treatment claims as a matter of law

Even if they were accepted as true, Vanderbilt's allegations that the Vanderbilt scientists told Glaxo that PDE-5 inhibitors might be useful to treat impotence fail as a matter of law to qualify the Vanderbilt scientists as co-inventors of any method claimed in the '329 patent.

This issue is controlled by the law set out in cases such as *Hess v. Advanced Cardiovascular Systems, Inc.*, 106 F.3d 976 (Fed. Cir. 1997). In *Hess*, the named inventors on the patent-at-issue consulted with Mr. Hess to find a suitably expansive and flexible material for a balloon angioplasty catheter they were developing. Hess suggested an approach he found in the published literature which the named inventors then proceeded to follow. *Id.* at 977-78.

When Hess later brought an action to add his name as a co-inventor on the issued patent, the district court found that he was not a co-inventor because he was "doing nothing more than explaining to the inventors what the then state of the art was," and the Federal Circuit affirmed on that basis. *Id.* at 981. *See also Fina Oil and Chemical Co. v. Ewan*, 123 F.3d 1466, 1473 (Fed. Cir. 1997) (A person will not be found a co-inventor "if he or she does no more than explain to the real inventors concepts that are well known [in] the current state of the art.").

At trial, Vanderbilt will essentially have to rely on a statement in either a January 1992 letter or a February 1992 proposal from Dr. Corbin to Dr. Ross at Glaxo to establish an inventive "contribution" by its scientists was more than an explanation about the state of the art. But Dr. Corbin himself has admitted that the information in the July 1992 Agreement was "obvious" knowledge in the art by January 1992. Consequently, under the law set out in *Hess* and *Fina Oil* (and many other cases), the communication of that information from Vanderbilt to someone at Glaxo could not qualify the Vanderbilt scientists as co-inventors of any method claimed in the '329 patent.

Combined with the absence of a factual or legal basis in the Complaint for finding that the Vanderbilt scientists could be co-inventors of the chemical compounds or pharmaceutical compositions claimed in the patents-at-issue, Vanderbilt cannot maintain its allegations that its scientists should be named co-inventors of the claimed methods of using such compounds or compositions to treat male impotence. Consequently, Vanderbilt has no basis, in fact or law, for a finding that its scientists should be listed as co-inventors on the '329 patent based on the method claims-at-issue, *i.e.*, claims 1, 2, 5, 8-10, 12, and 15-21 in the '329 patent.

VI. VANDERBILT MISINTERPRETS *AMERICAN BIOSCIENCE*

In its Pre-trial submissions (Exhibit 2 to the Pretrial Order), Vanderbilt argues (for the first time in this case) that *American Bioscience* actually supports Vanderbilt's co-inventorship

arguments. Vanderbilt says that the actions of its scientists are "indistinguishable" from the actions of three of the ABI scientists, Drs. Soon-Shiong, Desai and Tao, who were held to be inventors in the *American Bioscience* case.

Vanderbilt's position regarding *American Bioscience* was stated by its patent law "expert," Gerald Mossinghoff, during his deposition. Mr. Mossinghoff pointed out that in *American Bioscience,* a scientist named Dr. Tao had only contributed the idea of adding particular substituents to the taxotere analogs but was not involved in the unique selection of the 10-hydroxy group and nitro functional group for the patented compounds, a decision attributed only to Drs. Desai and Soon-Shiong (co-inventors of the patent-at-issue). Vanderbilt's conclusion from this is that the Vanderbilt scientists' alleged contribution is analogous to Dr. Tao's, such that the Vanderbilt scientists should be deemed co-inventors, like Dr. Tao.

Vanderbilt is wrong. There is a critical distinction between Dr. Tao's involvement with the development of the taxotere analogs by Drs. Desai and Soon-Shiong and the Vanderbilt Scientists' alleged involvement with the development of the claimed compounds by Dr. Daugan. All of the scientists, Drs. Desai, Soon-Shiong and Tao, found by the *American Bioscience* Court to be co-inventors, were aware of (and thus had to have had a complete conception of) the claimed taxotere analogs, with all their component substituents, prior to the filing of the patent application. In contrast, the FSU scientists were not aware of (and thus did not have complete conception of) the claimed taxotere analogs. Similarly, as Dr. Corbin admitted in his deposition, the Vanderbilt scientists were completely unaware of the beta-carboline compounds claimed in the patents-at-issue here until they saw the '006 patent in 2001.

Vanderbilt says that "the Federal Circuit made it abundantly clear that it is unnecessary to conceive of the entire compound in or to be a joint inventor," pointing to the *American*

Bioscience court's treatment of Dr. Nadizadeh, who contributed a method of making the claimed compounds in *American Bioscience* but was held not to be a co-inventor. Vanderbilt's reliance on this portion of *American Bioscience* is again wholly misplaced. The *American Bioscience* court held that Nadizadeh could only have been a co-inventor if the other three ABI inventors had been unable to make the claimed compounds without his help, but that "this is not this case."[13] Instead, the court reiterated that, as for the FSU scientists, Nadizadeh was not a co-inventor because "here, there is no evidence in the record that Nadizadeh knew that Tao, Soon-Shiong, and Desai were attempting to make any of the claimed compounds, or even that Tao, Soon-Shiong, or Desai had any contact at all with Nadizadeh after the claimed compounds were conceived. Nadizadeh neither made the claimed compounds nor attempted to make them, and he did not have 'a firm and definite idea' of the claimed combination as a whole."[14] Far from supporting Vanderbilt's argument, this is exactly why the Vanderbilt Scientists cannot be co-inventors of the compounds conceived by Dr. Daugan – they "neither made the claimed compounds nor attempted to make them," and they "did not have 'a firm and definite idea' of the claimed combination as a whole."

The Vanderbilt scientists' alleged contribution to the compounds claimed here is also like that of Dr. Holton, who was also found ***not*** to be a co-inventor in the *American Bioscience* case. In *American Bioscience*, while at FSU, Drs. Holton and Tao added certain substituents to taxol analogs. After leaving FSU for Vivorx (*i.e.*, *American Bioscience*), Dr. Tao had the idea to add these same substituents to the novel taxotere analogs synthesized by Drs. Desai and Soon-Shiong. Dr. Holton was not involved in the conception of adding the substituents to the novel

[13] *American Bioscience*, 333 F.3d at 1342.

[14] *Id.*

taxotere analogs synthesized at Vivorx. The court held that Dr. Holton was not a joint inventor with Drs. Tao, Desai, and Soon-Shiong, because he did not have a conception of the specific compounds being claimed, with all of their component substituents.[15] The Vanderbilt scientists cannot be co-inventors because, like Dr. Holton, they did not have a conception of the compounds claimed in the '006 or '329 patents with all of their component substituents.

In light of the holding in *American Bioscience*, Vanderbilt cannot reasonably expect to establish co-inventorship of any of the compounds claimed in the '006 patent. And since the Vanderbilt scientists were unaware of the claimed compounds, they could not have possibly been aware of the claimed use of these same compounds to treat erectile dysfunction. Therefore, the Vanderbilt scientists cannot be joint inventors on either the '006 or '329 patents.

VII. VANDERBILT'S ALLEGED "RULES" WERE NOT "RULES" THAT COULD BE USED BY DR. DAUGAN

Vanderbilt has alleged that its scientists contributed to the claimed invention by transmitting so-called "rules" or "design concepts" for increasing the potency of any PDE-5 inhibitor.[16] However, the Vanderbilt "rules" are so vague that they do not convey a definite idea; therefore, they cannot qualify as even generally contributing to the conception of the claimed inventions. Specifically, Vanderbilt has alleged that:

> "The Vanderbilt Scientists were the first to discover that, notwithstanding the nature or structure of any particular or specific PDE-5-inhibiting molecule, that molecule must satisfy certain 'rules' of physical and chemical structure, namely:
>
> a. A successful PDE-5 inhibitor candidate should mimic cGMP;
>
> b. They were the first to recognize that a key substituent on the molecule must also be 'hydrophobic' in order to add potency and successfully restrict the

[15] *American Bioscience*, 333 F.3d at 1341.

[16] Plaintiff Vanderbilt University's Supplemental Response to ICOS's Interrogatory No. 2 and Plaintiff Vanderbilt University's Response to ICOS's Interrogatory No. 26.

specificity thereof to PDE-5 and that the spatial orientation of the appended hydrophobic groups is critical for potency of the inhibitor. The Vanderbilt Scientists actually suggested several candidate hydrophobic substituents, one of which (phenyl) is present in tadalafil and another substituent appended to the phenyl (methoxy) is similar to the methylenedioxy appended to the phenyl in tadalafil; and

c. They were the first to suggest that the presence of electron donating groups on the phenyl ring of successful candidate PDE-5 inhibitors increased potency and that the presence of electron-withdrawing groups decreased potency."[17]

The evidence at trial will show that these alleged "rules" or "design concepts," even if they had been communicated to Dr. Daugan, were not applicable to the claimed compounds, and thus are insufficient to establish that the Vanderbilt scientists are joint inventors.

VIII. VANDERBILT CANNOT DEMONSTRATE THE REQUISITE OPEN LINE OF COMMUNICATION BETWEEN THE VANDERBILT SCIENTISTS AND DR. DAUGAN

In the *Kimberly-Clark* case,[18] the Federal Circuit held that two inventors cannot be joint inventors "if they have had no contact whatsoever and are completely unaware of each other's work."[19] Joint inventorship requires that the inventors must "have some open line of communication during or in temporal proximity to their inventive efforts . . . ."[20] Even disclosure of information to one person in a company is not sufficient to establish that the information was disclosed to an employee inventor associated with that company.[21]

Irrespective of what Vanderbilt's scientists might believe they conceived, Vanderbilt must demonstrate, by clear and convincing evidence, that an open line of communication

[17] Plaintiff Vanderbilt University's Supplemental Response to ICOS's Interrogatory No. 2.

[18] *Kimberly–Clark Corp. v Procter & Gamble Dist., Co., Inc.*, 973 F.2d 911 (Fed. Cir. 1992).

[19] *Id.* at 916.

[20] *Cook Biotech, Inc. et al. v. ACell Inc. et al.*, 460 F.3d 1365, 1373 (Fed. Cir. 2006), citing *Eli Lilly & Co. v. Aradigm*, 376 F.3d 1352, 1358-59 (Fed. Cir. 2004).

[21] *Beall v. Ormsby*, 154 F.2d 663, 665 (C.C.P.A. 1946).

between the Vanderbilt scientists and Dr. Daugan existed during or in temporal proximity to Dr. Daugan's conception of the claimed inventions. But as noted above, Vanderbilt has already admitted that its scientists neither knew nor communicated with Dr. Daugan,[22] and there is simply no evidence that Vanderbilt will be able to point to at trial showing any such communication between Dr. Daugan and the Vanderbilt scientists. In fact, the record is devoid of any evidence of ***any*** communication between Dr. Daugan and the Vanderbilt scientists, direct or indirect, ***for any purpose, at any time.***

Because Vanderbilt cannot possibly establish the requisite open line of communication between the Vanderbilt scientists and Dr. Daugan, Vanderbilt's allegations of co-inventorship fail as a matter of law.

IX. THERE IS NO DOCUMENTARY SUPPORT FOR VANDERBILT'S THEORY OF CO-INVENTORSHIP

In its pleadings and discovery responses, Vanderbilt has alleged that a number of documents demonstrate that Vanderbilt made "independent conceptual contributions" to the inventions of claims 1-8, 10, and 12-13 of the '006 patent, and conveyed those concepts "to Glaxo."[23] But in no instance do any of them provide any reasonable basis whereby Vanderbilt might demonstrate co-inventorship. None of these documents, singly or in combination, evidences or corroborates any communication between the Vanderbilt scientists and the named inventor, Dr. Daugan, much less a communication of Vanderbilt's "rules" to Dr. Daugan. More importantly, none of these documents, singly or in combination, provides evidence to

[22] Plaintiff Vanderbilt University's Response to ICOS Corporation's Second Set of Requests for Admissions, Response Nos. 23-26.

[23] *See* Plaintiff Vanderbilt University's Second Supplemental Response to ICOS's Interrogatory No. 2 and Expert Report of Sekhar R. Konjeti at 1.

corroborate Vanderbilt's assertion that its "rules" could have been or were actually used by Dr. Daugan in his conception of the compounds of the '006 patent.

Vanderbilt relies heavily on Dr. Corbin's research funding proposal letters to Glaxo. Representative of these documents is a February 24, 1992 grant proposal by the Corbin laboratory that was submitted to Dr. Barry Ross at Glaxo in the United Kingdom.[24] Vanderbilt contends that the proposal suggested one of Vanderbilt's "rules," that any PDE-5 inhibitor can be made more potent if it "mimics" cGMP, by the following statement:

> "We will design PDE inhibitors based on the theory that the potencies of existing inhibitors, such as 3-isobutyl-methylxanthine (IBMX) and zaprinast, could be enhanced by appending groups that would allow the inhibitors to more closely resemble the entire cGMP molecule."

Vanderbilt suggests that this proposal was forwarded to Drs. Labaudiniere and Hyafil in Les Ulis. Dr. Labaudiniere, however, has already testified that he has no recollection either of seeing the Corbin proposal or of being involved in any discussion of the Corbin proposal,[25] and Dr. Hyafil passed away in 2006. More importantly, there is no evidence that Dr. Daugan ever saw the Corbin proposal or that Dr. Daugan ever received any information contained in the proposal. There is also no evidence that Dr. Daugan *ever* contemplated making compounds that "more closely resemble the entire cGMP molecule."

Vanderbilt points to documents relating generally to Glaxo's funding of Dr. Corbin's research proposal, but none of these documents provides any evidence that Dr. Daugan received or utilized any information from the Vanderbilt scientists. Representative of these documents is an annual report by Dr. Corbin describing progress achieved during his research funded by a

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[24] PTX 117 (VC000249-254).

[25] October 28, 2006 Deposition of Richard Labaudiniere at 63:18-64:7 and 65:13-66:19.

1989 grant from Glaxo.[26] But Dr. Corbin has already testified that this document does not reflect any of Vanderbilt's "rules."[27]

Vanderbilt points to documents that relate to communications by the Vanderbilt scientists with Dr. Pascal Grondin, the Glaxo biologist who tested many of the compounds conceived by Dr. Daugan. Representative of these documents is a December 11, 1992 letter from Dr. Grondin to Dr. Corbin,[28] in which Dr. Grondin reports the results of testing five of Vanderbilt's cGMP analogs against PDE enzymes. There is no evidence that this data, relating solely to non-beta-carboline compounds, was used by Dr. Daugan or that Dr. Daugan even saw this data.

A February 3, 1993 letter[29] from Dr. Corbin to Dr. Grondin relays PDE-5 inhibition data for six Vanderbilt compounds (five IBMX analogs and one cGMP analog). Similarly, a March 5, 1993 letter[30] from Dr. Konjeti to Dr. Grondin relays PDE-5 inhibition data for six additional Vanderbilt IBMX analogs. But there is absolutely *no* evidence that Dr. Daugan either saw or made use of any of the information in either of these letters in his conception of the compounds claimed in the '006 patent. Dr. Grondin has already testified that he had no input into the design of any of Dr. Daugan's compounds, and Dr. Daugan has already testified that he only looked at biological testing results for the compounds he was working on; *i.e.*, compounds having a β-carboline scaffold, which cannot include the Vanderbilt cGMP or IBMX compounds.

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[26] PTX 67 (VC000161-163).

[27] *See* Corbin Tr. at 279:15-281:15.

[28] PTX 223 (GLAX00860-8621).

[29] PTX 243 (VK000023-24).

[30] PTX 253 (VK000025-26).

Moreover, in an August 10, 1993 letter from Dr. Konjeti to Dr. Grondin,[31] Dr. Konjeti admits that only one of the Vanderbilt compounds, 8-(4-chloro-phenylamino)-IBMX, demonstrated any selectivity for PDE-5.

Vanderbilt points to two pages from a fax dated December 16, 1992,[32] but Dr. Daugan has already testified that he never saw this document.[33] There is no evidence to the contrary, nor is there any evidence that Dr. Daugan utilized any information in this document in his conception of the compounds claimed in the '006 patent.

Vanderbilt points to documents that do not represent communications between the Vanderbilt scientists and Dr. Daugan or Dr. Grondin. An August 19, 1992 letter to Dr. Corbin from a Glaxo UK pharmacologist, Dr. G.M. Drew,[34] is representative of these documents. In this letter, Dr. Drew requested samples of several cGMP analogs described in a publication by Dr. Corbin. There is no evidence that Dr. Drew had any role in the conception of the compounds claimed in the '006 patent, nor is there any evidence of any communication between Dr. Drew and Dr. Daugan for any purpose. Moreover, the requested compounds were part of the prior art (as evidenced by the publication itself) and any contribution by the Vanderbilt scientists of information contained in the prior art cannot amount to contribution to conception of any of the claimed inventions.

Vanderbilt points to documents relating to the publication of research funded by Glaxo. Representative of these documents is a fax from Dr. Roberts, the academic liaison manager in

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[31] PTX 308 (VK000029-30).

[32] PTX 225 (GLAX12039-40).

[33] Daugan Tr. at 61:13-19.

[34] PTX 185 (VC000323).

the department of external scientific affairs at Glaxo Group Research in the United Kingdom, to Dr. Corbin.[35] In this document, Dr. Roberts acknowledges receipt of a manuscript entitled "Synthesis and Biological Activity of New and Potent 3-isobutyl-1-methylxanthine Analogs and cGMP Analogs." There is no evidence that Dr. Daugan ever saw the information in the manuscript or that Dr. Daugan used any information contained in the manuscript.

Vanderbilt points to a random collection of documents that do not describe any activity by Vanderbilt related to the conception of the claimed compounds. For example, Vanderbilt points to a 1992 scientific publication entitled "Partial Mapping of Cyclic Nucleotide Sites and Studies of Regulatory Mechanisms of Phosphodiesterases Using Cyclic Nucleotide Analogues." Whatever this document may disclose, it is not a communication of information between Vanderbilt's scientists and Dr. Daugan or anyone else at Glaxo. Moreover, this is prior art which cannot amount to an inventive contribution to conception of an invention.

In short, none of these documents, singly or in combination, reflects any communication of any of Vanderbilt's "rules" or "design concepts" to the named inventor, Dr. Daugan. Indeed, none of these documents, singly or in combination, corroborates Vanderbilt's assertion that its three "rules" or "design concepts" were actually communicated to anyone at Glaxo. There is no evidence that Dr. Daugan actually used any Vanderbilt "rule" or "design concept" in his conception of any of the compounds of the '006 patent.

There is simply no evidence that can support Vanderbilt's assertion that its scientists made any conceptual contributions to the inventions of claims 1-8, 10, and 12-13 of the '006 patent, that any of Vanderbilt's "rules" or "design concepts" were even conceived by the Vanderbilt scientists prior to Dr. Daugan's conception(s), that any such "rule" or "design

[35] PTX 319 (VC000496).

concept" was ever communicated to Glaxo or to Dr. Daugan, or that any such "rule" or "design concept" was actually utilized by Dr. Daugan in his conception(s). Vanderbilt's assertions are nothing more than mere speculation.

X. THERE IS NO EVIDENTIARY SUPPORT FOR VANDERBILT'S CLAIM OF CONTRIBUTION TO CONCEPTION OF THE INVENTIONS OF THE '329 PATENT

Vanderbilt has alleged that each of the Vanderbilt scientists made independent conceptual contributions to the inventions described in claims 1-3, 5-12, and 15-21 of the '329 patent, and that those contributions were communicated to and shared with Glaxo prior to the application for that patent. Specifically, Vanderbilt has alleged that the Vanderbilt scientists conceived the concept that a PDE-5 inhibitor "derived according to their suggestions" would be effective in treating male impotence and communicated that information to Glaxo.

To the extent Vanderbilt's claim for co-inventorship of the '329 patent depends on its allegations that its scientists contributed to the conception of the compounds recited in the '006 patent, this assertion has no evidentiary support, as discussed above.

Vanderbilt relies on relatively few specific documents to support its assertion of independent conceptual contribution to the inventions of claims 1-3, 5-12, and 15-21 of Patent 6,140,329. However, none of these documents, singly or in combination, constitute corroborating evidence that the Vanderbilt scientists contributed to Dr. Daugan's conception of using his claimed PDE-5 inhibitor compounds to treat erectile dysfunction in a male animal, as claimed in the '329 patent.

Vanderbilt has alleged that the Vanderbilt scientists communicated the concept of using a PDE-5 inhibitor to treat male impotence in a letter that Dr. Corbin allegedly sent to Dr. Ross on

January 3, 1992,[36] or in the February 24, 1992 Corbin proposal. The relevant passages in these documents state:

> "It is anticipated that some of the compounds generated by this project, and by future projects, will be used by Glaxo scientists at various international sites for intact tissue and animal testing as well as for other experiments. It is well-known from the work of many groups, including our own, that the cGMP-dependent protein kinase (cG kinase) has important disease-related functions other than the induction of vascular smooth muscle relaxation . These include airway smooth muscle relaxation (asthma), corpus cavernosum relaxation (male impotence), and platelet aggregation inhibition (cardiovascular malfunction). Additionally, four groups have reported within the last year. that nerve cell long- term potentiation (memory) is mediated by cGMP. Our cGMP analogs and phosphodiesterase (PDE) inhibitors are likely to be effective in many of these systems."

> "It is well known from the work of many groups, including our own, that the cG kinase has important disease-related functions other than the induction of vascular smooth muscle relaxation. Our cyclic GMP analogs and cG-BPDE inhibitors should also work in these other systems. I mention here airway smooth muscle relaxation (asthma), corpus cavernosum relaxation (male impotence), and platelet aggregation inhibition (cardiovascular malfunction)."

As described above regarding the evidentiary value of these same documents relative to Vanderbilt's claim of contribution to conception of the inventions claimed in the '006 patent, there is no evidence that either the letter or the proposal was ever seen by Dr. Daugan. Further, there is no evidence to corroborate any assertion that the information contained in either of these documents was ever conveyed to Dr. Daugan. And there certainly is no evidence to corroborate an assertion that these documents or the information contained in them was actually used by Dr. Daugan in his conception of the inventions claimed in the '329 patent.

Vanderbilt has alleged that the Vanderbilt scientists conveyed the concept to Dr. Hyafil and Dr. Ross during their respective visits to Vanderbilt in 1992. But no evidence exists that can corroborate this assertion. To the contrary, Dr. Ross has already testified that he has no

[36] There is no evidence that this letter was actually sent to Dr. Ross on January 3, 1992.

recollection when or how he first heard of the concept of using a PDE-5 inhibitor to treat male impotence.[37]

Moreover, the concept of using a PDE-5 inhibitor to treat erectile dysfunction in a male animal was already known in the art by the time that the Vanderbilt scientists allegedly suggested the concept to Dr. Ross.[38] Dr. Francis admitted that she and Dr. Corbin suggested the concept to Dr. Ross because it was evident from prior-art publications by the Ignarro group.[39] And Dr. Corbin admitted that the concept was known in the art in 1993.[40] Vanderbilt cannot demonstrate contribution to conception of the inventions of the '329 patent by citing prior art information as its contribution.

With respect to the inventions claimed in the '329 patent, there is simply no evidence to which Vanderbilt can point that could satisfy its clear-and-convincing-evidence burden to prove that any suggestion by the Vanderbilt scientists that a PDE-5 inhibitor might be useful to treat male impotence was ever communicated to Dr. Daugan, much less that such a suggestion was communicated to Dr. Daugan prior to the point when that concept was indisputably disclosed to those in the art via the publications of Ignarro *et al.* and others.

Consequently, Vanderbilt cannot prove that its scientists contributed in any way to the conception of any invention claimed in the '329 patent. In his deposition, Dr. Corbin admitted that neither he nor his colleagues conceived of the means to accomplish the treatment of male impotence claimed in the '329 patent:

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[37] *See* Transcript of January 5, 2007 Deposition of Barry Ross ("Ross Tr.") at 93:23-94:19.

[38] *See, e.g.*, Bush et al., *FASEB Journal* 5 (6), A400 (1991).

[39] *See* Francis Tr. at 30:2-31:13 and 31:17-33:13.

[40] Corbin Tr. at 86:18-87:19.

Q. And you go to Request No. 9.

A. Yes, sir.

Q. We asked Vanderbilt to admit that none of the Vanderbilt scientists had conceived a method for the treatment of erectile dysfunction in a male animal comprising administration of any compound recited in the '329 patent prior to July 14, 1995, and you see that that was denied. Yes?

A. (Witness nodded head.)

Q. Did you or either of your colleagues conceive of a method for treating erectile dysfunction in a male animal comprising administering one of the compounds claimed in the '329 patent prior to July 14, 1995?

MR. BRENNEN: Objection.

THE WITNESS: We didn't.[41]

In light of this admission, Vanderbilt cannot meet its clear-and-convincing evidence burden to demonstrate a significant contribution to conception of the inventions claimed in the '329 patent.

XI. ICOS STATEMENT OF ISSUES OF LAW THAT REMAIN TO BE LITIGATED

A. Statement of the issues of law which ICOS contends remain to be litigated

The only issues of law that remain to be litigated are:

(i) whether any of "the Vanderbilt Scientists" (*i.e.*, Drs. Corbin, Francis and/or Konjeti) invented any of the specific chemical compounds recited in claims 1-8, 10, 12, and 13 of the '006 patent, *i.e.*, whether they conceived any of the specific chemical compounds recited in the claims of the '006 patent, and communicated that conception to Dr. Daugan, prior to Dr. Daugan's conception(s) of that compound; and

(ii) whether any of "the Vanderbilt Scientists" (*i.e.*, Drs. Corbin, Francis and/or Konjeti) invented any of the methods and/or compositions recited in claims 1-3, 5-12, 15-21 of the '329

[41] Corbin Tr. at 254:1-17.

patent, *i.e.*, whether they conceived using the specific compounds and compositions recited in the claims of the '329 patent in a method to treat erectile dysfunction in a male animal, and communicated that conception to Dr. Daugan, prior to Dr. Daugan's conception of that method.

XII. ICOS STATEMENT OF ISSUES OF FACT THAT REMAIN TO BE LITIGATED

A. The Vanderbilt Scientists did not conceive or in any way contribute to the conception of any compound or composition claimed in the Patents-at-Issue

Because Vanderbilt has already admitted in its Responses to ICOS's Requests for Admissions that none of "the Vanderbilt Scientists" had any knowledge of the structures of the chemical compounds (or even the types of compounds) that were being studied, developed, and synthesized by Dr. Daugan and the other medicinal chemists working on the "PDE-5 project" at Laboratoires Glaxo S.A. in Les Ulis, France during the relevant time period of 1991-1994, and the Vanderbilt Scientists have also admitted in their depositions that prior to the issuance of the Patents-at-Issue, they did not communicate with Dr. Daugan or the other medicinal chemists working at Laboratoires Glaxo S.A. in Les Ulis, France during the relevant time period of 1992-1994, the only issues of fact that remain to be litigated regarding whether "the Vanderbilt Scientists" should be considered co-inventors of the specific chemical compounds recited in the '006 patent claims are:

(i) whether the information generated by "the Vanderbilt Scientists" prior to Dr. Daugan's conceptions of the specific chemical compounds recited in the Asserted '006 Claims was communicated to Dr. Daugan;

(ii) if any information generated by "the Vanderbilt Scientists" prior to Dr. Daugan's conception(s) of the specific chemical compounds recited in the claims of the '006 patent was communicated to Dr. Daugan, whether that information constituted "rules" applicable to the specific chemical compounds recited in the claims of the '006 patent; and

(iii) if the information generated by "the Vanderbilt Scientists" constituted "rules" applicable to the specific chemical compounds recited in the claims of the '006 patent, whether that information significantly contributed to Dr. Daugan's conception of any of those specific chemical compounds.

B. The Vanderbilt Scientists did not conceive or contribute to the conception of any method claimed in the Patents-at-Issue

Because the Vanderbilt Scientists have admitted that they were not aware of the structure or existence of any of the specific chemical compounds recited in any of the claims of the '329 patent prior to the issuance of that patent, they cannot have conceived of the specific methods utilizing those compounds (or compositions comprising those specific compounds) claimed in that patent prior to the filing of Dr. Daugan's second U.K. application on July 15, 1995, the only issues of fact that remain to be litigated regarding whether the Vanderbilt Scientists should be considered co-inventors of any of the methods or compositions claimed in the Asserted '329 Claims are:

(i) whether any information generated by "the Vanderbilt Scientists" that Vanderbilt contends constituted any part of the conception of those specific method and compositions was known to those of ordinary skill in the relevant art prior to July 15, 1995 (the date on which Dr. Daugan's second U.K. application was filed);

(ii) if any of that information that was not already known in the relevant art prior to July 15, 1995 was communicated to Dr. Daugan prior to July 15, 1995; and

(iii) if any of that information that was not already known in the relevant art prior to July 15, 1995 was communicated to Dr. Daugan prior to July 15, 1995, whether that information significantly contributed to the conception(s) of the specific methods or compositions recited in the Asserted '329 Claims.