UNITED STATES DISTRICT COURT

EASTERN DISTRICT OF LOUISIANA

	:	MDL NO. 1657
IN RE: VIOXX	:	
PRODUCTS LIABILITY LITIGATION	:	SECTION: L
	:	
	:	JUDGE FALLON
	:	MAG. JUDGE KNOWLES
....	:	

THIS DOCUMENT RELATES TO
Plunkett v. Merck & Co., Inc., 05-4046

ORDER & REASONS

Before the Court are several *Daubert* and *Daubert*-like motions filed by both the Plaintiff and Defendant. For the following reasons, the Court rules as follows:

I. Background

Vioxx (known generically as rofecoxib) belongs to a general class of pain relievers known as non-steroidal anti-inflammatory drugs ("NSAIDs"). This class of drugs contains well-known medications sold either over the counter—such as Advil (ibuprofen) and Aleve (naproxen)—or by prescription—such as Daypro (oxaprozin) and Voltaren (diclofenac). NSAIDs work by inhibiting cyclooxygenase (COX), an enzyme that stimulates synthesis of prostaglandins, which are chemicals produced in the body that promote certain effects.

Traditional NSAIDs have been a longstanding treatment option for patients needing relief from chronic or acute inflammation and pain associated with osteoarthritis. rheumatoid arthritis, and other musculoskeletal conditions. This relief, however, comes with significant adverse side effects. Specifically, traditional NSAIDs greatly increase the risk of gastrointestinal perforations, ulcers, and bleeds ("PUBs"). This risk is increased when high doses are ingested, which is often necessary to remedy chronic or acute inflammation and pain. Scientists estimated that traditional NSAID-induced PUBs caused a significant number of deaths and hospitalizations each year in the United States.

In the early 1990s, scientists discovered that the COX enzyme had two forms—COX-1 and COX-2—each of which appeared to have several distinct functions. Scientists believed that COX-1 affected the synthesis or production of prostaglandins responsible for protection of the stomach lining, whereas COX-2 mediated the synthesis or production of prostaglandins responsible for pain and inflammation. This belief led scientists to hypothesize that "selective" NSAIDs designed to inhibit COX-2, but not COX-1, could offer the same pain relief as traditional NSAIDs with the reduced risk of fatal or debilitating PUBs. In addition, scientists believed that such drugs might be able to prove beneficial for the prevention or treatment of other conditions, such as Alzheimer's disease and certain cancers, where evidence suggested that inflammation may play a causative role.

In light of these scientific developments, Merck & Co., Inc. ("Merck") and several other pharmaceutical companies began the development of such drugs, which became known as "COX-2 inhibitors" or "coxibs." Vioxx is a COX-2 inhibitor.

On May 20, 1999, the Food and Drug Administration ("FDA") approved Vioxx for sale

in the United States. From its initial approval, Vioxx gained widespread acceptance among physicians treating patients with arthritis and other conditions causing chronic or acute pain.

Before and after its initial approval, Vioxx was subjected to a number of studies and tests, including, but not limited to, VIGOR, APPROVe, ViP, VICTOR, ADVANTAGE, the Alzheimer's studies, Professor Kronmal's reanalysis of Merck's clinical data, the Solomon study, the Juni study, the Ray study, the Graham study, the Kimmel study, the Levesque study, the Mamdani study, the Ingenix study, the Johnsen study, the Nussmeier study, and the Fitzgerald hypothesis. In addition, a large amount of scientific literature was written on the effects of Vioxx and other COX-2 inhibitors.

On September 30, 2004, Merck withdrew Vioxx from the market when interim unblinded data from a long-term, blinded, randomized placebo-controlled clinical trial, known as APPROVe, seeking to assess whether Vioxx could help prevent the recurrence of precancerous colon polyps, indicated that the use of Vioxx increased the risk of cardiovascular thrombotic events such as myocardial infarctions and ischemic stroke.

Thousands of lawsuits followed in both state and federal court. On February 16, 2005, as a result of the sheer mass of these lawsuits and the potential for many more, the Judicial Panel on Multidistrict Litigation ordered that the Vioxx litigation be centralized, designated as an MDL, and assigned to this Court.

One of this Court's first tasks was to set cases for early federal court trial. With the consent of both the Plaintiff and Merck, this case was set for trial in late November in New Orleans, Louisiana. Due to Hurricane Katrina, the location of the trial was moved with the consent of the parties to Houston, Texas, but the timing of the trial remained the same. This case

involves the death of Richard Irvin, Jr.

Mr. Irvin was a 53-year-old man with severe lower back and hip pain. He weighed approximately 230 lbs. and stood 6' tall. On April 9, 2001, he asked his son-in-law, Dr. Christopher Schirmer, an emergency room physician, to give him something for pain. Dr. Schirmer gave Mr. Irvin a prescription for Vicoprofen 7.5/200 mg and Methocarbmol 750 mg each to be taken once every six hours. Mr. Irvin was unable to tolerate this medication because it produced severe nausea and vomiting. In addition, it provided no significant pain relief.

Subsequently, Mr. Irvin received some samples of Vioxx 25 mg from a friend. He was able to tolerate the Vioxx, and it also reduced his pain. On April 15, 2001, he again contacted Dr. Schirmer and, this time, requested a prescription for Vioxx. Dr. Schirmer sent Mr. Irvin a prescription for 30 tablets of Vioxx 25 mg to be taken once daily. This prescription was filled on April 22, 2001.

On May 15, 2001, while at work, Mr. Irvin suffered a heart attack. Extensive resuscitative efforts were then carried out by the Fire Department Emergency Medical Technicians and later by emergency room personnel at Flagler Hospital in St. Augustine, Florida, where Mr. Irvin had been taken. These efforts were unsuccessful, and Mr. Irvin was pronounced dead at 9:02 a.m. on May 15, 2001. An autopsy revealed an unattached coronary thrombus, or clot, in the left anterior descending coronary artery.

Mr. Irvin's surviving spouse, Evelyn Irvin Plunkett, has brought this suit against Merck on behalf of herself, Mr. Irvin's two minor children, and the Estate of Richard Irvin, Jr. She alleges that Vioxx was a defective product, Merck knew Vioxx was defective, and Merck failed to adequately warn Mr. Irvin of Vioxx's defective nature. As such, she asserts that Merck is

liable for Mr. Irvin's death.

In particular, the Plaintiff asserts that the scientific tests conducted on and the scientific literature written on Vioxx revealed that Vioxx increases the risk of cardiovascular thrombotic events. To put it simply, the Plaintiff contends that Vioxx creates an imbalance between thromboxane and prostacyclin. Thromboxane promotes platelet aggregation, vessel constriction, and proliferation of smooth muscle cells. Prostacyclin, however, opposes the action of thromboxane inhibiting platelet aggregation, facilitating vasodilation, and preventing proliferation of smooth muscle cells. COX-2 is the dominant source of prostacyclin; therefore, the Plaintiff claims that the inhibition of COX-2 favors thrombogenesis, hypertension, and the promotion of atherosclerosis. Specifically, the Plaintiff claims that this mechanism ultimately led to the formation of the thrombus in Mr. Irvin's left anterior descending coronary artery and caused his death.

Merck asserts that none of the tests specifically revealed that Vioxx 25 mg ingested for less than a month can increase the risk of adverse cardiovascular events or create a prothrombotic state.

The Plaintiff and Merck intend to call experts to support their respective positions and each has filed *Daubert* motions to exclude the other's witnesses.

II. LAW AND ANALYSIS

Rule 702 of the Federal Rules of Evidence governs the admissibility of expert testimony. Rule 702 is in effect a codification of the United States Supreme Court's opinion in *Daubert v. Merrel Dow Pharmaceuticals*, 509 U.S. 579 (1993). In *Daubert*, the Supreme Court held that trial courts should serve as the gatekeeeper for expert testimony and should not admit such

testimony without first determining that the testimony is both "reliable" and "relevant." *Id.* at 589.

Scientific testimony is reliable only if "the reasoning or methodology underlying the testimony is scientifically valid," meaning that such testimony is based on recognized methodology and supported by appropriate validation based on what is known. *Id.* at 592-93. In *Daubert*, the Supreme Court set forth a non-exclusive list of factors to consider in determining the scientific reliability of expert testimony. *Id.* at 593-95. These factors are: (1) whether the theory has been tested; (2) whether the theory has been subject to peer review and publication; (3) the known or potential rate of error; (4) whether standards and controls exist and have been maintained with respect to the technique; and (5) the general acceptance of the methodology in the scientific community. *Id.* Whether some or all these factors apply in a particular case depends on the facts, the expert's particular expertise, and the subject of his testimony. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 138 (1999).

In addition to the five factors laid out in *Daubert*, a trial court may consider additional factors in assessing the scientific reliability of expert testimony. *Black v. Food Lion, Inc.*, 171 F.3d 308, 312 (5th Cir. 1999). Some of these factors may include: (1) whether the expert's opinion is based on incomplete or inaccurate dosage or duration data; (2) whether the expert has identified the specific mechanism by which the drug supposedly causes the alleged disease; (3) whether the expert has unjustifiably extrapolated from an accepted premise to an unfounded conclusion; (4) whether the expert has adequately accounted for alternative explanations; and (5) whether the expert proposes to testify about matters growing directly out of research he or she has conducted independent of the litigation. *See, e.g., id.* at 313; *Moore v. Ashland Chem., Inc.*,

151 F.3d 269, 278-79 (5th Cir. 1998); *Christophersen v. Allied-Signal Corp.*, 939 F.2d 1106, 1114 (5th Cir. 1991); *Newton v. Roche Labs., Inc.*, 243 F. Supp. 2d 672, 678 (W.D. Tex. 2002).

Scientific testimony is relevant only if the expert's reasoning or methodology can be properly applied to the facts in issue, meaning that there is an appropriate fit between the scientific testimony and the specific facts of the case. *Daubert*, 509 U.S. at 593. Scientific evidence is irrelevant, however, when there is too great an analytical gap between the data and the opinion proffered. *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997).

The party seeking to introduce the expert testimony bears the burden of demonstrating that the testimony is both relevant and reliable. *Moore*, 151 F.3d at 275-76. The focus is not on the result or conclusion, but on the methodology. *Id.* The proponent need not prove that the expert's testimony is correct, but must prove by a preponderance of the evidence that the methodology used by the expert was proper. *Id.*

The trial court is the gatekeeper of scientific evidence. *Daubert*, 509 U.S. at 596. It has a special obligation to ensure that any and all expert testimony meets these standards. *Id.* Accordingly, it must make a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and whether the reasoning or methodology can be properly applied to the facts in issue. *Id.* at 592-93. In making this assessment, the trial court need not take the expert's word for it. *Joiner*, 522 U.S. at 147. Instead, when expert testimony is demonstrated to be speculative and lacking in scientific validity, trial courts are encouraged to exclude it. *Moore*, 151 F.3d at 279.

In satisfying its "gatekeeper" duty, the Court will look at the qualifications of the experts and the methodology used in reaching their opinions and not attempt to determine the accuracy of

the conclusion reached by the expert. The validity or correctness of the conclusions is for the fact finder to determine.

III. Present Motions

The Plaintiff has filed the following eight motions: (1) A Motion to Exclude the Testimony of Dr. Thomas Wheeler (Rec. Doc. 1139); (2) A Motion to Exclude the Testimony of Dr. Janet Arrowsmith-Lowe (Rec. Doc. 1372); (3) A Motion to Exclude the Testimony of Doctors Frank Lanza and Merlin Wilson (Rec. Doc. 1142); (4) A Motion to Exclude the Testimony of Dr. David Silver (Rec. Doc. 1143); (5) A Motion to Exclude Testimony that Adverse Thrombotic Cardiac Events Occur Only if Vioxx is Ingested 18 Months or Longer (Rec. Doc. 1144); (6) A Motion to Exclude Testimony that Vioxx is the Same as All NSAIDs Regarding Cardiotoxic Effects (Rec. Doc. 1138); (7) A Motion to Exclude Testimony that Naproxen is Sufficiently Cardioprotective to Explain the Excess Cardiac Risk in VIGOR (Rec. Doc. 1141); and (8) A Motion to Exclude Testimony that Merck Could Not Provide Risk Information Through Labeling or Marketing Without Prior Approval of the FDA (Rec. Doc. 1140).[1]

Merck has also filed the following eight motions: (1) A Motion to Exclude the Testimony of Winston Gandy, Jr., M.D. (Rec. Doc. 1118); (2) A Motion to Exclude the Testimony of Wayne A. Ray, Ph.D. (Rec. Doc. 1117); (3) A Motion to Exclude the Testimony of Benedict Lucchesi, M.D., Ph.D., M.S., F.A.H.A. (Rec. Doc. 1172); (4) A Motion to Exclude the Testimony of Colin M. Bloor, M.D., and Joseph L. Burton, M.D. (Rec. Doc. 1120); (5) A Motion

[1] The Court is classifying the Plaintiff's last four motions and Merck's last motion as *Daubert*-like motions, as opposed to *Daubert* motions. These five motions do not challenge a specific expert's qualifications and methodology, but challenge the reliability of certain scientific conclusions.

to Exclude the Testimony of Thomas Baldwin, M.D. (Rec. Doc. 1121); (6) A Motion to Exclude the Testimony of John W. Farquhar, M.D. (Rec. Doc. 1122); (7) A Motion to Exclude the Testimony of Richard M. Kapit, M.D. (Rec. Doc. 1119); and (8) A Motion to Exclude Evidence of the Plaintiff's Experts Regarding Causation (Rec Doc. 1515).

The Court has reviewed the reports from the experts at issue and studied the extensive briefs submitted by the parties. Counsel further presented their respective positions at a hearing specifically set for this purpose on November 14-15, 2005. It is now appropriate for the Court to rule on these motions.

Generally, in *Daubert* motions, the parties attack the methodology used by the proposed expert or question the expertise of the expert. Here, at least in most of these motions, the movant questions the interpretation or accuracy of the underlying source studies or literature relied on by the expert and suggests that the conclusions drawn or formulated by the expert are flawed. The Court will address each challenged expert in turn starting first with the Plaintiff's motions and then proceeding to Merck's motions. Once the Court has reviewed these *Daubert* motions, the Court will rule on the *Daubert*-like motions.

A. Plaintiff's Motions

I. Dr. Thomas Wheeler

Dr. Wheeler was retained by Merck to testify as an expert regarding: (1) the cause and manner of Irvin's death; (2) the role of Irvin's pre-existing artherosclerosis in his death, specifically as it relates to an ostensible rupture of Irvin's artherosclerotic plaque; (3) the role of hypertrophy of Irvin's heart in his death; and (4) the lack of evidence to link short-term use of Vioxx 25 mg with serious adverse cardiovascular events.

a. Plaintiff's Position

First, the Plaintiff argues that Dr. Wheeler lacks the necessary expertise to express an opinion. It is thus appropriate to review his curriculum vitae. Dr. Wheeler completed a residency in general pathology in 1981. There was no specialization in cardiac pathology at that time. Following his residency, he did not do any formal postgraduate training in cardiac pathology or any other subspecialty of pathology. After that, he became an Assistant Professor of Pathology at the Baylor College of Medicine. Since that time, according to the Plaintiff, Dr. Wheeler has become an authority on prostate pathology, but has done little work in the area of cardiac pathology. He has never conducted an independent study of his own on sudden cardiac death; he does not recall ever offering pathological expertise in any formal study in sudden cardiac death; he has not authored or co-authored a publication in sudden cardiac death. He is not a medical examiner or forensic pathologist who specifically addresses causes of death as a matter of routine. In addition, he only considers himself an expert in cardiac arrhythmias in a general medical sense, not as a cardiologist. He has never diagnosed a case of drug-induced myocardial infarction or cardiac thrombosis formation.

The Plaintiff also challenges Dr. Wheeler's ability to offer an opinion concerning cardiac hypertrophy (enlargement of the heart) because he has not done any research, published an article, or lectured on cardiac hypertrophy. Moreover, the Plaintiff suggests that mean weight, the tool used by Dr. Wheeler in diagnosing hypertrophy, is not reliable for determining hypertrophy.

The Plaintiff also challenges Dr. Wheeler's expertise to testify as to the focal rupture of the fibrous cap because Dr. Wheeler could not visualize one, but rather concluded one was

present based on other observable phenomena in autopsy slides.

b. Merck's Position

According to Merck, Dr. Wheeler posses sufficient expertise to testify on the cause and manner of Mr. Irvin's death. He has been board certified in both anatomic and clinical pathology, which includes cardiac pathology, for nearly 25 years. For three years in the late 1990s, Dr. Wheeler served on the Anatomic Pathology Test Committee of the American Board of Pathology and helped design the anatomic pathology certification examination. Over the course of his career, Dr. Wheeler has conducted numerous autopsies involving cardiovascular issues and performed/supervised several hundred autopsies, many involving atherosclerotic coronary vascular disease. Additionally, Merck points out that an expert need not be an internationally recognized cardiac pathologist to provide expert testimony on cardiac-related causes of death.

As to cardiac hypertrophy, Merck asserts that Dr. Wheeler's substantial experience and training as a pathologist and his voluminous experience with respect to cardiac-related autopsies more than qualifies him to provide expert testimony as to cardiac hypertrophy despite the fact that it was not his primary research focus. In addition, Dr. Wheeler testified that certain studies have classified hearts with weights greater than the mean as enlarged hearts. Since Mr. Irvin's heart weight was greater than the mean, he classified it as enlarged.

As to the focal rupture of the fibrous cap, Merck asserts that two of the Plaintiff's experts agree with Dr. Wheeler. Next, Merck asserts that the observations made by Dr. Wheeler which led him to conclude that there was a focal rupture are consistent with the standard method for arriving at that diagnosis. Also, Merck points out that the focal rupture appears on other slides

produced by the Plaintiff after the submission of Dr. Wheeler's report. In summary, Merck contends that Dr. Wheeler arrived at his diagnosis through standard diagnosis procedure, it was agreed to by two of the Plaintiff's experts, and was subsequently confirmed by additional evidence. As such, his opinion cannot be classified as conjecture, according to Merck.

c. Court's Ruling

Dr. Wheeler is a board certified physician in both anatomical pathology and clinical pathology with a subspecialty in cytopathology. He is currently licensed to practice medicine in the state of Texas. He has been a practicing physician for the past 24 years and is currently the Interim Chair of the Department of Pathology at Baylor College of Medicine in Houston, Texas. Over the course of his career, he has performed hundreds of autopsies and signed off on hundreds more.

In formulating his opinion, he reviewed the report and histological slides from Mr. Irvin's autopsy, as well as Mr. Irvin's personal medical records, including reports from a 1998 emergency room visit as well as a report on the day of his death. He also reviewed the expert reports of Doctors Burton and Bloor, who are the Plaintiff's expert pathologists, and the depositions of both Dr. Schirmer and the Plaintiff. He based his opinions on these materials and his education, training, and experience.

At oral argument, the Plaintiff's main attack on Dr. Wheeler's qualifications was that he is an expert in prostrate pathology, not cardiovascular pathology. While Dr. Wheeler may spend the majority of his research time and academic pursuits in prostrate pathology, he is still qualified to opine in this case. He has conducted a large number of autopsies, many involving cardiovascular issues. In the 1990s, he served on the American Board of Pathology Anatomic

Pathology Test Committee and helped design the anatomic pathology certification examination. In addition, he has numerous credentials and experience in the field of pathology. The Plaintiff's attack is fodder for cross-examination, not grounds to exclude Dr. Wheeler from testifying at all.

Additionally, there is nothing speculative or unreliable about the methodology used by Dr. Wheeler. He reviewed Mr. Irvin's autopsy slides and medical records. He also reviewed the expert reports of Dr. Bloor and Dr. Burton and the depositions of Dr. Schirmer and the Plaintiff. Dr. Wheeler based his opinion on his review of these materials and his training and experience. In fact, Dr. Wheeler reached the same conclusions as both of the Plaintiff's experts. Therefore, there is no reason to exclude Dr. Wheeler's expert testimony. He is qualified, and he used proper methodology in reaching his opinions. Accordingly, the Plaintiff's motion to disqualify Dr. Wheeler is denied.

ii. Dr. Janet Arrowsmith-Lowe

Merck has designated Dr. Arrowsmith-Lowe to testify as an expert witness on Merck's interactions with the FDA and on the company's communications with the medical community.

a. Plaintiff's Position

The Plaintiff asserts several reasons for excluding Dr. Arrowsmith-Lowe's testimony. First, the Plaintiff asserts that she did not properly review the data or results from the studies which she cites. Instead, she simply relied upon the quality of Merck's scientists and the FDA's review of their work. The Plaintiff asserts that her vouching for the work of others and the quality of government regulations is inadequate under *Daubert*.

Second, the Plaintiff challenges her testimony based on her inability to correctly answer how many people would have to be in a study to detect a doubling of the incidence rate from one

in a thousand to two in a thousand. The Plaintiff asserts that her inability to answer this question along with her tortured explanation proves she is not a qualified expert.

Third, the Plaintiff challenges Dr. Arrowsmith-Lowe's qualifications. According to the Plaintiff, Dr. Arrowsmith-Lowe has not been at the FDA since 1996 and was never a medical officer in charge of reviewing a new drug application or a supplemental new drug application. She never designed a randomized clinical study. She never engaged in direct negotiation with a sponsor over drug labeling. In addition, her current contact with the FDA is limited.

Moreover, the Plaintiff asserts that the FDA has changed significantly since she left. In specific, in 1997, the Food and Drug Administration Modernization Act was enacted which reauthorized the Prescription Drug User Fee Act. These changes required the FDA to refund fees to drug companies for any aspect of their fee going towards drug approvals not matched by the FDA. As such, the Plaintiff claims that she is not an expert in post-1996 FDA standards.

In addition, the Plaintiff claims that Dr. Arrowsmith-Lowe is biased. In support, the Plaintiff points out that her deposition testimony was full of holes, her consulting company makes $500,000 annually by providing testimony on behalf of pharmaceutical companies in drug litigation, and she has testified in 36 trials or depositions in the last four years—one every six weeks.

b. Merck's Position

According to Merck, Dr. Arrowsmith-Lowe is well-qualified to offer her opinions as to Merck's interactions with the FDA and the company's communications with the medical community. First, Merck argues that Dr. Arrowsmith-Lowe did review the data and did not rely solely upon the opinions of others in reaching her conclusions. Second, Merck is offering Dr.

Arrowsmith-Lowe as a regulatory expert, not an expert in epidemiology or biostatistics. She is not required to crunch numbers from every Merck study ever conducted to reach reliable conclusions about the adequacy of those studies from a regulatory standpoint. Instead, as a regulatory expert, it was reasonable for her to rely on what Merck submitted to the FDA, as well as what the FDA did in response to those submissions.

Third, regarding Dr. Arrowsmith-Lowe's alleged inability to testify about the doubling of the incidence rate, Merck contends that she is not being called to testify as a statistician. She is being called to testify as a regulatory expert to explain the nature of the FDA's review of Merck's testing of Vioxx. Lastly, Merck asserts that the Plaintiff's arguments concerning Dr. Arrowsmith-Lowe's qualifications and alleged bias are unfounded and completely untrue.

c. Court's Ruling

Dr. Arrowsmith-Lowe is a board certified physician in Internal Medicine, a fellow of the American College of Physicians, and an elected member of the American College of Epidemiology. From 1984-1996, she served as a medical review officer at the FDA and was acting Director of the Office of Surveillance and Biometrics, Center for Devices and Radiologic Health at the FDA from 1993-1995. She is currently licensed in New Mexico and has also passed the federal licensing exam.

In formulating her opinion, Dr. Arrowsmith-Lowe relied on her training and experience as a medical doctor, epidemiologist, and FDA medical review officer and acting director of the Office of Surveillance and Biometrics. Additionally, her opinions are based on her knowledge of the requirements applicable to pharmaceutical manufacturers under the Federal Food, Drug, and Cosmetic Act and federal regulations pursuant to the Act; her knowledge of general FDA

policies, procedures, and industry practices through her FDA and consultant experience; and her knowledge of practices in the pharmaceutical industry involving the development of innovative medicines. Furthermore, she reviewed the following: Merck's communications with as well as their submissions to the FDA, including portions of the Investigational New Drug Application for Vioxx and Supplemental New Drug Applications for Vioxx; FDA commentary; protocols and data from Vioxx clinical studies and clinical study reports; the minutes and transcripts of several Advisory Committee Meetings; the FDA's April 6, 2005 Decision Memorandum; the reports of Dr. Richard M. Kapit and Dr. John L. Gueriguian, who are the Plaintiff's expert witness; and other literature and material.

Regarding Dr. Arrowsmith-Lowe's qualifications, the Plaintiff asserts that she is unqualified to render her opinions because she has not been employed by the FDA since 1996 and was never in charge of reviewing a new drug application or supplemental new drug application. Nonetheless, Dr. Arrowsmith-Lowe was employed by the FDA for 12 years, has maintained contact with the FDA, and has worked as a consultant for pharmaceutical companies in their dealing with the FDA since 1996. Moreover, although she was never in charge of reviewing a new drug application or supplemental new drug application, she has substantial experience reviewing them and is knowledgeable of the applicable regulations.

Specifically, the Plaintiff asserts that the enactment of the Food and Drug Administration Modernization Act in 1997 renders Dr. Arrowsmith-Lowe unqualified; however, the Plaintiff does not assert any specific reasons why this renders her unqualified. Instead, at oral argument, all of the regulations that the Plaintiff cited in support of her position were enacted well before 1996. As such, the Court finds the Plaintiff's arguments unpersuasive.

The Court finds that Dr. Arrowsmith-Lowe is qualified and her testimony is based on reliable methodology. Once again, the Plaintiff's position is appropriate to attack credibility of the expert at cross-examination instead, not to preclude her from testifying under *Daubert*. Accordingly, the Plaintiff's motion to exclude Dr. Arrowsmith-Lowe is denied.

iii. Dr. Frank Lanza and Dr. Merlin Wilson

Dr. Lanza, a gastroenterologist, was retained by Merck to offer his opinions that Vioxx and other COX-2 inhibitors serve as an important treatment option for patients with a history of gastrointestinal complications.

Dr. Wilson, a rheumatologist, was retained by Merck to offer his opinions that Vioxx was a safe and effective treatment for pain and inflammation associated with rheumatoid arthritis, osteoarthritis, and other musculoskeletal disorders; that Vioxx was an important medicine for physicians like him; that in his patient practice, patients experienced fewer gastrointestinal side effects on Vioxx than on traditional NSAIDs; and that the results of VIGOR were disseminated widely in the medical community starting in March 2000.

a. Plaintiff's Position

The Plaintiff claims that Dr. Lanza and Dr. Wilson's testimony is irrelevant because Mr. Irvin was not being treated by either a gastroenterologist or a rheumatologist. In addition, the Plaintiff asserts that their testimony is not reliable under *Daubert* because their opinions are based solely on their practice.

b. Merck's Position

Merck claims that their testimony is relevant because it rebuts the Plaintiff's allegations that the principal purpose of Vioxx was to generate profits for Merck and that Merck was

negligent. By testifying as to the benefits of Vioxx and that Vioxx was fit for its ordinary purposes, Dr. Lanza and Wilson can rebut the Plaintiff's contentions.

Regarding the specific relevancy as to Mr. Irvin, Merck claims that their testimony is relevant because Mr. Irvin did suffer severe gastrointestinal side effects while he was on Vicoprofen and, as such, switched to Vioxx. Moreover, Mr. Irvin did not have any reported medical history and his son-in-law testified that he complained about arthritis type pain. Therefore, the opinion of an expert gastroenterologist and rheumatologist is relevant to explain the efficacy of Vioxx.

Regarding the basis of their testimony, Merck claims that Doctors Lanza and Wilson have reviewed and relied upon substantial published literature proving that Vioxx has a safer GI profile as compared to traditional NSAIDs. This was the reason for introducing COX-2 inhibitors. Merck also claims that they have substantial clinical experience in their fields. As such, Merck asserts that *Daubert* allows experts to testify regarding their clinical experience if it is consistent with otherwise reliable evidence.

c. Court's Ruling

Dr. Lanza is a board certified physician in Internal Medicine and Gastroenterology. He has a B.S. in Bacteriology from the University of Maryland, a M.A. in Biochemistry from the University of Texas Medical Branch, and a M.D. from the University of Texas Medical Branch. He did his residency at Baylor University and did a fellowship at the University of Texas.

Over the past 40 years, Dr. Lanza has held numerous academic appointments and professional positions. He currently serves as a Clinical Professor of Medicine in the Department of Gastroenterology at Baylor College of Medicine and as the Chief Emeritus for the Endoscopic

Training Program at Ben Taub Hospital in Bellaire, Texas, and for the Sharpstown General Hospital in Houston, Texas. He has served as the Chief of Gastroenterology at Memorial Hospital in Houston, Texas. In addition, he has served as the Director and Principal Investigator at the Houston Institute for Clinical Research. He was also the Consulting Editor in Gastroenterology for the Journal of Muculoskeletal Medicine and a past President of the American College of Gastroenterology. In addition to his professional and academic qualifications, Dr. Lanza also currently maintains his own active gastroenterology practice in Houston, Texas.

In formulating his opinion, Dr. Lanza reviewed the scientific information on Vioxx and other COX-2 inhibitors, Mr. Irvin's medical records from the day of his death and his autopsy, two depositions of Dr. Schirmer, the deposition of the Plaintiff, and the Plaintiff's responses to Merck's first set of interrogatories. In addition, his opinion is based on his 35 years of clinical experience in the filed of gastroenterology.

Dr. Wilson is a board certified physician in Internal Medicine, a diplomat of the American Board of Internal Medicine with a subspecialty in Rheumatology, a fellow of the American College of Physicians and the American College of Rheumatology, and a Clinical Professor of Medicine at LSU Health Sciences Center and Tulane Medical School. In addition to his formal education, he has been a practicing rheumatologist for the past twenty-five years.

In formulating his opinion, Dr. Wilson reviewed the scientific literature regarding Vioxx. In addition, his opinion is based on his experience as a prescribing physician.

The Plaintiff raised no challenges to the qualifications or methodology of Dr. Lanza or Dr. Wilson. Much like the Plaintiff, the Court finds no reason to challenge the experts on these

grounds either. Simply put, Dr. Lanza and Dr. Wilson are qualified to testify as an expert witness.

Although the Plaintiff does not challenge the qualifications of Dr. Lanza or Dr. Wilson, the Plaintiff does challenge the relevancy of their testimony. According to the Plaintiff, Mr. Irvin was never treated by a gastroenterologist or rheumatologist and never suffered from a gastrointestinal injury or any form of arthritis. As such, their testimony has no relevance to this case.

To the contrary, Mr. Irvin did suffer from gastrointestinal side effects while he was on Vicoprofen. This is why Dr. Schirmer prescribed him Vioxx. Moreover, Dr. Schirmer testified that Mr. Irvin did complain about having arthritis type pain. Furthermore, their testimony is relevant to refuting the Plaintiff's claims. Dr. Lanza and Dr. Wilson will testify that the benefits of Vioxx outweighed its risks. In addition, the Plaintiff asserts that Merck's primary motivation in manufacturing and distributing Vioxx was to generate the greatest amount of profits possible. This testimony describes the benefits of Vioxx and is relevant to refuting the Plaintiff's claims.

Moreover, the Plaintiff challenges the admissibility of Dr. Lanza's and Dr. Wilson's testimony because it is anecdotal as opposed to scientific. According to the Plaintiff, since their testimony simply recounts their clinical experiences, it cannot be admitted as expert testimony. This assertion is incorrect. Expert witnesses are allowed to base their opinions on personal experiences provided that their opinions are confirmed by scientifically reliable data. *Cantrell v. GAF Corp.*, 999 F.2d 1007, 1014 (6th Cir. 1993). Here, both doctors' personal experiences are supported by reliable scientific data. As such, their testimony is reliable, relevant, and admissible. Accordingly, the Plaintiff's motion to exclude the testimony of Dr. Lanza and Dr.

Wilson is denied. The testimony of these doctors, however, may well be redundant and Merck should reevaluate whether they are needed at trial.

iv. Dr. David Silver

Dr. Silver, a rheumatologist, was retained by Merck to offer his opinions relating to a threshold for duration of 36 months, the naproxen hypothesis, alleged gastrointestinal safety relating to Vioxx, adequacy of labeling for Vioxx, and specific causation as to the death of Richard Irvin.

a. Plaintiff's Position

The Plaintiff argues that Dr. Silver is not qualified to testify because he does not have the qualifications to render the opinions offered. First, Dr. Silver is not a cardiologist, pharmacologist, biostatistician, neurologist, regulatory expert, hematologist/clot expert, or pharmacoepidemiologist. He has no expertise in cardiology or cardiac pathology. As such, the Plaintiff argues that any opinion in these areas falls outside his area of expertise.

Second, the Plaintiff that Dr. Silver, as a rheumatologist, is not qualified to opine on the past medical treatment of Mr. Irvin, including why he ingested Vioxx. Specifically, osteoarthritis and rheumatoid arthritis are not diagnosed conditions for Mr. Irvin. As such, there is no importance regarding Dr. Silver's knowledge of whether Mr. Irvin had arthritis.

Third, the Plaintiff alleges that there were no gastrointestinal issues relating to Mr. Irvin's use of Vioxx that warrant the opinion testimony of Dr. Silver. To the extent that Dr. Silver bases any opinions of the gastrointestinal tolerability of Vioxx in his own patient population, such testimony is merely anecdotal and cannot qualify as scientific and reliable data.

Finally, the Plaintiff alleges that, with no cardiac training, Dr. Silver's medical experience

does not qualify him to testify as to the specific cause of Mr. Irvin's thrombotic cardiac event and death.

b. Merck's Position

First, based on his experience, Merck contends that Dr. Silver is an expert in pain management and the use of COX-2 inhibitors to treat pain. Merck argues that Dr. Silver, in his testimony, will explain the challenges of treating chronic pain and the benefits of COX-2 inhibitors such as Vioxx.

Second, regarding the Plaintiff's assertion concerning the fact that Mr. Irvin was never diagnosed with osteoarthritis or arthritis and never experienced any gastrointestinal issues, Merck argues that this is factually incorrect. In addition, even if it were correct, Merck argues that Dr. Silver can still testify because the gastrointestinal benefits of Vioxx are relevant to understanding the overall benefits of the drug and comparing those benefits to the known risks of the drug.

As far as testifying as to the cause of Mr. Irvin's death, Merck asserts that Dr. Silver's clinical experience and review of the published literature allow him to testify that based on the undisputed facts surrounding Mr. Irvin's death Vioxx did not cause his death.

As far as testifying as to the adequacy of Vioxx labeling, Merck asserts that Dr. Silver is qualified to give his opinion because of his experience as a routine prescriber, researcher, and primary care physician.

Lastly, regarding Dr. Silver's ability to testify as to the clinical trials conducted on Vioxx, Merck asserts that Dr. Silver is qualified because he has participated in a substantial number of clinical trials and he has first-hand knowledge concerning the design, implementation, and interpretation of clinical trials involving Vioxx.

c. Court's Ruling

Dr. Silver is a board certified physician in Internal Medicine and Rheumatology. He is a licensed physician in California and Illinois and is on the National Board of Medical Examiners. He has held numerous distinguished appointments.

Presently, he is Associate Clinical Professor of Medicine at the University of California at Los Angeles, Director of the Chronic Pain Rehabilitation Program at Cedars-Sinai Medical Center in Los Angeles, and Associate Director of the Osteoporosis Medical Center. He has consulted with numerous pharmaceutical interests and was a clinical investigator for Merck in the ADVANTAGE trial and on Arcoxia. In addition, he is a practicing physician.

Furthermore, he is also a distinguished researcher, who is currently the beneficiary of 15 research grants. He has been involved in over fifty clinical trials involving arthritis, including more than twenty pertaining to COX-2 inhibitors. He has authored a number of publications and given over 200 lectures on the subject of NSAIDs and COX-2 inhibitors over the course of his career.

In formulating his opinion, Dr. Silver reviewed the relevant published, peer-reviewed medical literature and had even actively followed it before being retained in this case. Moreover, his opinion is based on his years of clinical experience.

The Plaintiff makes a broad-brush challenge to Dr. Silver's qualifications. To the extent that Dr. Silver may testify regarding chronic pain and the risk/benefit calculations of COX-2 inhibitors, he is certainly qualified. His experience with and understanding of these subjects, as evidenced by his expert report, support his qualifications. In addition, he has based his opinions on scientifically reliable information.

To the extent that Dr. Silver may testify that Vioxx did not contribute Mr. Irvin's death, Dr. Silver is qualified to testify. Dr. Silver is a board certified internist with years of experience treating his patients' cardiac conditions. He has reviewed all the relevant literature and studies. If the Plaintiff wishes to attack Dr. Silver because he is not a cardiologist, pharmacologist, biostatistician, neurologist, regulatory expert, hematologist/clot expert, or pharmacoepidemiologist, she will be allowed to do so on cross-examination. Moreover, for the same reasons as Dr. Lanza's testimony, Dr. Silver's testimony as to the gastrointestinal effects of Vioxx is both relevant and admissible. But again, such testimony is at best overlapping and at worst redundant.

B. Merck's Motions

I. Winston Gandy, Jr., M.D.

The Plaintiff has designated Dr. Gandy to opine that (a) Vioxx 25 mg increases the risk of blood clots in short-term use, and (b) that Vioxx contributed to Mr. Irvin's sudden cardiac death.

a. Merck's Position

Merck contends that Dr. Gandy is not qualified to opine that Vioxx 25 mg increases the risk of blood clots or that Mr. Irvin died as a result of his ingestion of Vioxx. Specifically, Merck argues that Dr. Gandy's professional training and experience does not qualify him to opine on general causation because he is not a researcher, has never done any research on NSAIDs prior to this case, never done any research on COX-2 inhibitors prior to this case, has never authored a publication on sudden cardiac death, and does not have any extensive experience with Vioxx. In addition, based on Dr. Gandy's lack of experience, Merck argues that he failed to undertake the proper study to opine on causation. Merck argues that the 10 to 15

hours spent by Dr. Gandy reviewing materials was insufficient, the materials reviewed by Dr. Gandy were incomplete and provided by the Plaintiff's counsel, and he only reviewed two Vioxx clinical studies.

Next, Merck argues that Dr. Gandy's opinion that Vioxx causes a prothrombotic state is not based on reliable scientific evidence. Dr. Gandy testified that he believes Vioxx causes a prothrombotic state based on the VIGOR results and his opinion that COX-2 inhibitor drugs create an imbalance in the thromboxane and prostacyclin levels in the vasculature. Merck contends that VIGOR does not support Dr. Gandy's opinion and that Dr. Gandy has no scientific support for his assertion that Vioxx causes a prostacyclin/thromboxane imbalance.

Lastly, Merck argues that Dr. Gandy does not have a scientific basis to opine that Vioxx caused Mr. Irvin's death. Moreover, Merck argues that Dr. Gandy has no evidence that Vioxx, at the dose and duration used by Mr. Irvin, causes increased cardiovascular risks.

b. Plaintiff's Position

The Plaintiff argues that Dr. Gandy is a board certified cardiologist with extensive clinical experience and is eminently qualified to testify regarding the specific cause of Mr. Irvin's death. The Plaintiff asserts that there are hundreds of articles describing the relationship between COX-2 and prostacyclin and that Dr. Gandy is familiar with these articles. Although Dr. Gandy is not an expert pharmacologist, epidemiologist, or biostatistician, the Plaintiff argues that he does not need to be because he is allowed to rely on the opinions of others in formulating his own. The Plaintiff argues that Dr. Gandy does not have to reevaluate the raw data of each study.

c. Court's Ruling

Dr. Gandy is a board certified cardiologist. He has a B.S. in Chemistry from the

University of Maryland. He has an M.D. from Howard University College of Medicine. He interned and was a resident in Internal Medicine at Emory University. He held a fellowship at the University of Alabama Birmingham from 1989-1992.

Dr. Gandy is licensed in both Alabama and Georgia. He has held several medical special appointments and is a staff member of several hospitals. He is a fellow of the American College of Cardiology and a member of the American Medical Association, National Medical Association, American Heart Association, Atlanta Medical Association, American Society of Echocardiography, and the American College of Physicians. He has co-authored two publications.

In formulating his opinions, Dr. Gandy relied upon his training, knowledge, and experience as a cardiologist. In addition, Dr. Gandy relied on numerous studies, reports, documents, and emails. In fact, twelve of the nineteen pages of Dr. Gandy's expert report contain a listing of the studies, reports, documents, and emails reviewed by Dr. Gandy.

Regarding Dr. Gandy's qualifications, Merck asserts that Dr. Gandy is not qualified to testify as an expert because he is not a researcher, but rather a cardiologist who specializes in reading echocardiograms. Furthermore, Merck contends that Dr. Gandy did not undertake the necessary research to make himself knowledgeable enough to testify as an expert witness.

There are several problems with Dr. Gandy's testimony. First, his expert report is nineteen pages long. The first fifteen pages consist of an introduction, his qualifications, and the materials reviewed by him. The last page and a half consists of his conclusions. As such, there are only two and a half pages of analysis by Dr. Gandy in his expert report. Dr. Gandy's analysis in these pages is wholly conclusive, rather than explanatory. In addition, his deposition

testimony is littered with circular reasoning and instances where he is unable to answer certain questions regarding the literature and studies he said he had read.

The Court acknowledges that Dr. Gandy is a cardiologist who is well qualified to testify as an expert regarding Mr. Irvin's cardiac condition at his time of death. The Court, however, is faced with a much tougher decision of whether Dr. Gandy is qualified to testify that Vioxx was a cause of Mr. Irvin's death. Dr. Gandy's deposition as well as his report reveals that Dr. Gandy does not possess a superior understanding of how Vioxx increases cardiovascular risks. Yet, the Court acknowledges that Dr. Gandy did utilize proper methodology. He reviewed all the proper studies and literature. Although his comprehension of these studies may have been somewhat lacking, he was entitled to and did rely upon experts in the field of pharmacology and epidemiology. As such, the Court finds that his methodology was proper and that he is qualified to render an opinion on Mr. Irvin's cardiac state based upon his review of the relevant materials. To the extent that Merck asserts that Dr. Gandy does not understand Vioxx and its alleged effects, Merck will be able to attack Dr. Gandy at cross-examination much like it did at his deposition. Accordingly, the jury will be entitled to draw its own conclusions as to how much weight Dr. Gandy's opinion should be afforded. Accordingly, Merck's motion to exclude Dr. Gandy's testimony is denied.

ii. Wayne A. Ray, Ph.D.

The Plaintiff has designated Professor Ray to opine whether: (1) Vioxx increases the risk of heart attacks and heart disease; (2) if so, the magnitude of that risk; and (3) if there was an increased risk, could it come from a use of Vioxx for less than 30 days.

a. Merck's Position

First, Merck challenges the data upon which Professor Ray relied upon to reach his conclusion that short-term use of Vioxx increases cardiovascular risk. Professor Ray claims four lines of evidence support his position: (1) biological plausibility; (2) short-term studies of other COX-2 inhibitors; (3) data from clinical trials of Vioxx for shorter periods of use; and (4) data from epidemiologic studies for shorter periods of time. Merck claims that these four lines of evidence do not support Professor Ray's claims.

As to biological plausibility, Merck claims that Professor Ray relied solely upon the Fitzgerald hypothesis to reach his conclusion that Vioxx causes a greater incidence of cardiovascular events. Merck claims that the Fitzgerald hypothesis is pure speculation. As such, Professor Ray's conclusion is based on unreliable information.

As to short-term studies of other COX-2 inhibitors (celecoxib, lumiracoxib, and valdecoxib/parecoxib), Merck asserts that these studies are unreliable for three reasons. First, Merck claims that Professor Ray's conclusion is based on the unreliable Fitzgerald hypothesis. Second, Merck argues that studies of other COX-2 inhibitors cannot prove causation as to Vioxx because of the differences between the drugs.

As to clinical trials for shorter periods of time, Professor Ray reached his opinion by relying upon Professor Kronmal's re-analysis of Merck's clinical trial data. Merck claims that this re-analysis is unreliable because it was conducted for purposes of this litigation, has not been published, and has not been subject to peer review, and it does not demonstrate that 25 mg of Vioxx can cause thrombotic cardiovascular events during the first month of use.

As to epidemiologic studies, Professor Ray reviewed five studies: Solomon, Johnsen,

Kimmel, Graham, and Levesque. Merck claims that all five of these studies are insufficient to support the theory that short-term use of Vioxx can cause an increase in cardiovascular events.

Second, Merck contends that Professor Ray cannot properly opine that Vioxx accelerates atherosclerosis. In reaching this opinion, Merck claims that Professor Ray once again relied on the Fitzgerald hypothesis, which Merck claims is unreliable.

Third, Merck contends that Professor Ray cannot opine on what doctors should prescribe to patients because Professor Ray is unqualified to do so. Professor Ray is not a medical doctor. He cannot prescribe Vioxx. As such, Merck argues that he is not qualified to opine on the risk-benefit analysis medical doctors make when determining whether to prescribe any medication to a particular patient.

Fourth, Merck argues that Professor Ray may not testify or opine about Mr. Irvin or the specific causation of his death. In support, Merck points out that Professor Ray is not a medical doctor, his expert report is silent on Mr. Irvin, and he even testified that he would not offer an analysis of any clinical information as to an individual patient.

Fifth, Merck asserts that Professor Ray may not testify regarding his disapproval of the actions taken by the FDA. Merck contends that Professor Ray is not an expert in FDA regulatory matters and, under *Buckman Co. v. Plaintiffs' Legal Committee*, 531 U.S. 341, 350 (2001), he is not entitled to supplant the judgment of the FDA in balancing the benefits and risks of drugs from the regulatory perspective.

Sixth, Merck argues that Professor Ray cannot testify as to Merck's alleged failure to meet subjective normative standards. Basically, Merck asserts that Professor Ray's opinion as to what Merck should have done based upon his own subjective standards of what standards should

be followed by a pharmaceutical company is unreliable. In addition, Merck asserts that Professor Ray cannot offer inflammatory characterizations of Merck's failure to follow his subjective standards because, in addition to its inflammatory nature, it is irrelevant since Merck must be judged according to legal standards, not Professor Ray's.

Lastly, Merck contends that Professor Ray should not be allowed to testify as to Merck's state of mind, motive, or perceived bias because Professor Ray has no qualifications or specialized expertise in determining a company's knowledge or state of mind.

b. Plaintiff's Position

The Plaintiff asserts that Professor Ray's opinions are based on scientifically reliable evidence. There have been numerous studies that have concluded that Vioxx does cause an increase in cardiovascular incidents. Professor Ray has relied on these reports including Merck's VIGOR report. The Plaintiff argues that the reports regarding other drugs are also reliable because they are substantially similar to Vioxx. All the drugs are COX-2 inhibitors; they all are supposed to reduce pain; they all indicate a greater than normal incidence of cardiovascular event.

c. Court's Ruling

Professor Ray is currently a professor of preventive medicine at Vanderbilt University School of Medicine. He is the director of Pharmacoepidemiology and of the Master of Public Health Program. He received a B.S. from the University of Washington, a M.S. from Vanderbilt University, and a Ph.D. from Vanderbilt University.

Professor Ray has carried out pharmacoepidemiologic research for thirty years and is actively involved in the design, execution, and analysis of numerous pharmacoepidemiologic

studies. He is a fellow of the International Society for Pharmacoepidemiology. He is the principal investigator for the Vanderbilt Center for Education and Research on Therapeutics and for a Cooperative Agreement with Food and Drug Administration. In these duties, he is continually required to evaluate and design studies that determine whether or not there is evidence that a medication causes an adverse reaction.

Professor Ray has published more than 150 manuscripts in the peer reviewed literature. He also reviews articles for numerous leading medical journals.

As principal investigator for the Cooperative Agreement with the Food and Drug Administration, Professor Ray regularly meets with officials from the FDA and his work involves rapid identification and confirmation of adverse medication reactions and assessment of appropriateness of medication use.

In particular, Professor Ray has conducted several studies of the gastrointestinal and cardiovascular safety of the NSAIDs and coxibs. These studies have been published in several peer reviewed scientific journals.

Professor Ray's opinions are derived from his education, training, research, experience, expertise, and review of the peer-reviewed medical literature and other publicly available documents concerning the treatment of musculoskeletal disorders, NSAIDs, COX-2 inhibitors, and cardiovascular illness.

First, the Court finds that Professor Ray is adequately qualified to testify as to whether short-term use of Vioxx increases the risk of adverse cardiovascular risks. His career has been based around pharmacoepidemiologic investigations that concern the adverse and beneficial effects of medications. In particular, he has conducted several studies of the gastrointestinal and

cardiovascular safety of NSAIDs and COX-2 inhibitors. Moreover, Professor Ray has reviewed the scientifically relevant literature surrounding Vioxx. Although these studies do not specifically address whether short-term use of Vioxx can cause adverse cardiovascular effects, these studies were not designed to reach these conclusions. Instead, they were designed for alternate purposes; however, a general theme running throughout all these studies was that Vioxx can cause adverse cardiovascular effects. Moreover, Professor Ray points to the raw data of these studies as support for his conclusion. Professor Ray is qualified to make an analogy based upon all these tests that short-term Vioxx use can cause adverse cardiovascular effects. Accordingly, the Court finds that he is qualified to testify as an expert and that he used scientifically reliable methodology in reaching his opinions.

Besides challenging his general opinion that short-term use of Vioxx can increase cardiovascular risks, Merck also challenges several other of Professor Ray's opinions. For the same reasons stated above, Professor Ray is qualified to opine that Vioxx accelerates atherosclerosis. This opinion is based upon the Fitzgerald hypothesis, which has been supported by numerous articles as well as recognized medical journals. Although Merck may disagree with the conclusions reached in the Fitzgerald hypothesis and supporting literature, a disagreement does not amount to improper methodology or scientifically unreliable data.

Merck has also challenged whether Professor Ray's is qualified to testify on what doctors should prescribe to patients and on the specific cause of Mr. Irvin's death. The Court finds that Professor Ray may not opine on these issues. He is not a medical doctor. He is not qualified to testify as to the risk-benefit analysis performed by medical doctors. Moreover, he is not qualified to review the clinical information of Mr. Irvin. He is lacking in the necessary training to testify

as to what doctors should have done and to what was the specific cause of Mr. Irvin's death.

Additionally, Merck argues that Professor Ray may not testify as to his disapproval of the actions taken by the FDA. Professor Ray is not an expert in FDA regulatory matters. He does not have experience in this field. As such, Rule 702 bars him from testifying as to matters beyond his range of knowledge. The Court points out, however, that *Buckman Co. v. Plaintiffs' Legal Committee*, 531 U.S. 341 (2001), would not bar a qualified expert from testifying as to their opinion on whether the FDA correctly balanced the benefits and risks of a drug from a regulatory standpoint. In *Buckman*, the Supreme Court found that state law fraud-on-the-FDA claims were preempted by federal law. This holding is completely inapplicable to the issue at hand.

Lastly, Merck challenges Professor Ray's qualifications to testify as to what Merck should have done or as to Merck's state of mind. The Court will reserve ruling on these issues until such time as they are presented at trial. At that time, the Court will have a clearer basis for making its ruling. Accordingly, Merck's motion to exclude Professor Ray's testimony is denied in part and granted in part.

iii. Benedict R. Lucchesi, M.D., Ph.D., M.S., F.A.H.A.

The Plaintiff has designated Dr. Lucchesi as an expert qualified to testify on a host of topics ranging from medical causation to an array of non-scientific issues such as advertising and drug pricing.

a. Merck's Position

First, Merck seeks to exclude Dr. Lucchesi from purporting to address Merck's knowledge and state of mind, whether Merck's development and marketing of Vioxx conformed

with Dr. Lucchesi's personal standards, and whether Merck's Vioxx warning in physician prescribing information, patent information, and consumer advertising conformed with Dr. Lucchesi's personal standards.

According to Merck, Dr. Lucchesi is a professor of pharmacology. Merck argues that He is not qualified to address what Merck knew, and he is not qualified to opine on the propriety of Merck's actions with respect to Vioxx. *See* In re *Rezulin Prods. Liab. Litig.*, 309 F. Supp. 2d 531, 546 (S.D.N.Y. 2004). In addition, Merck alleges that Dr. Lucchesi's knowledge comes from documents provided by Plaintiff's counsel. From these documents, he draws his inferences and conclusions. In effect, Merck asserts that he is usurping the role of the jury.

As far as Merck's failure to meet Dr. Lucchesi's standards goes, Merck asserts that Dr. Lucchesi is not an expert in the field of drug development, testing, and marketing. Therefore, according to Merck, his personal, subjective views are irrelevant and unreliable. They are not based on objective, empirical, ascertainable, and verifiable bases.

Moreover, Merck contends that Dr. Lucchesi should not be allowed to testify as to the warnings that Vioxx carries or should carry. Merck argues that Dr. Lucchesi is not an expert in the labeling of FDA-regulated drugs. Merck alleges that he is not an expert in the advertising or marketing of prescription medications. Therefore, Merck contends that he should not be allowed to testify as to the adequacy of the warning Vioxx carried. Additionally, according to Merck, this testimony cannot meet the requirement of reliability because Dr. Lucchesi identifies no methodology or standard against which the Court can measure the reliability of his opinion.

Second, Merck claims that Dr. Lucchesi has no scientifically reliable basis to opine on general causation. According to Merck, since Dr. Lucchesi lacked reliable trial and

epidemiologic data, he analogized data from animal studies he conducted and a case report written by Dr. Leslie Crofford to conclude that Vioxx causes a higher risk of cardiovascular events. Merck asserts that the animal studies are unreliable and, even if they are reliable, much of Dr. Lucchesi's animal work involved the use of a drug other than Vioxx, making it even more unreliable. Also, Merck asserts that case reports are unreliable because they describe a single individual or a series of individuals who have coincident exposures and diseases. Merck argues that although they can be useful in generating testable hypotheses, case reports cannot establish a cause and effect relationship because case reports cannot for the role chance, bias, or confounding.

Next, Merck argues that Dr. Lucchesi cannot identify the pharmacological mechanism by which Vioxx supposedly has a thrombotic cardiovascular effect. Dr. Lucchesi relies upon the Fitzgerald hypothesis in reaching his conclusions. Merck, once again, claims that the Fitzgerald hypothesis is not proven and is unreliable.

Lastly, Merck argues that Dr. Lucchesi does not have a scientifically reliable basis to opine on specific causation. Merck alleges that Although he received a medical degree in 1964, Dr. Lucchesi is not a licensed physician, has never been a licensed physician, has never treated a patient, and has never been licensed to prescribe medications. Moreover, Merck contends that he has no basis to opine on whether Mr. Irvin died due to any of the alleged mechanisms by which he believes Vioxx can cause or contribute to sudden cardiac death. Merck asserts that even if the Fitzgerald hypothesis were correct, Dr. Lucchesi has no basis to testify that Mr. Irvin actually suffered an imbalance of prostacyclin and thromboxane from Vioxx use, or even the degree of prostacyclin inhibition necessary to cause a clinically significant result.

In addition, according to Merck, Dr. Lucchesi cannot testify as to whether Mr. Irvin suffered a plaque rupture because he never looked at the pathology slides and he stipulated that he would not opine about whether Mr. Irvin suffered a plaque rupture. Plus, Merck claims that Dr. Lucchesi cannot testify as to whether Vioxx contributed to the formation of plaque in Mr. Irvin's coronary arteries. At his deposition, Merck contends that Dr. Lucchesi could only highly suspect that Vioxx contributed to plaque formation in Mr. Irvin. Plus, Dr. Lucchesi admitted that he could not rule out other potential causes of Mr. Irvin's death.

b. Plaintiff's Position

The Plaintiff first points out and stresses Dr. Lucchesi's outstanding qualifications, including the fact that he has researched and published in the very areas of pharmacology that are at issue in this case. Regarding Dr. Lucchesi's ability to opine on what Merck knew or should have known, the Plaintiff asserts that few, if any, jurors will be able to understand the meaning and significance of scientific articles or documents like patents and emails between scientists. The Plaintiff contends that Dr. Lucchesi can provide the explanation that the jury will need to understand. In essence, Dr. Lucchesi will act as a translator.

In assessing what Merck knew or should have known, Dr. Lucchesi reviewed a series of emails between Merck employees. He also reviewed patents filed by Merck employees, all of which "describe a method for preventing platelet dependent arterial thrombosis in patients being treated with a COX-2 inhibitor. A reading of the patent indicates that Merck was attempting to develop one or more adjunctive agents to be used in combination with a COX-2 inhibitor to prevent arterial thrombus formation." It is necessary for an expert like Dr. Lucchesi to interpret these complex documents to the jury, according to the Plaintiff.

The Plaintiff further argues that in the same way that it is necessary for Dr. Lucchesi to address what Merck knew or should have known based on the relevant documentation, it is necessary for Dr. Lucchesi to explain the actions Merck should have taken based on the information evidenced in the documentation. The Plaintiff contends that his testimony is not personal opinion, but valid and reliable testimony about the logical consequences of scientific facts.

Next, the Plaintiff points out that many of the comments which Merck is concerned about are not Dr. Lucchesi's opinions, but comments taken out of context elicited by Merck's counsel.

Regarding Dr. Lucchesi's opinions on causation and his reliance on animal studies and case reports, the Plaintiff asserts that this is reliable, accepted science. First, the Plaintiff asserts that expert testimony does not have to be based on epidemiologic or case studies to prove causation. Second, the Plaintiff points out that the Federal Judicial Center's reference Manual on Scientific Evidence even recognizes that toxicology models based on animal studies may be used to determine adverse effects in humans. Third, the Plaintiff argues that Dr. Lucchesi has based his findings on numerous studies and many of his own studies. Lastly, according to the Plaintiff, all these studies are mutually corroborative.

Regarding mechanism, the Plaintiff asserts that Merck continues to confuse mechanism with plausibility. Biological plausibility is defined as the consideration of existing knowledge about human biology and disease pathology in order to provide a judgment about the plausibility that an agent causes a disease. The Plaintiff contends Biological plausibility lends further credence to an inference of causation established through epidemiology, animal studies, and other evidence. According to the Plaintiff, there is no need to prove the precise mechanism by

which Vioxx causes cardiovascular events, only that it is plausible. *See Kennedy v. Collagen Corp.*, 161 F.3d 1226, 1230 (9th Cir. 1998). According to the Plaintiff, it would be unreasonable to conclude that the subject of scientific testimony must be known to a certainty because, in science, there are no certainties.

Regarding Dr. Lucchesi's lack of experience in practicing medicine, the Plaintiff argues that Dr. Lucchesi is well qualified to testify as to specific causation. The Plaintiff alleges that Dr. Lucchesi will not testify as to what Mr. Irvin actually suffered, but he intends to testify as to what might have happened based on his review of the facts of this case and his own expertise.

c. Court's Ruling

Dr. Lucchesi received a B.S. and a Masters in Pharmacy from St. John's University in New York City. He then received a Ph.D. in Pharmacology and a M.D. from the University of Michigan. He is presently a professor in the University of Michigan's Department of Pharmacology. He has received numerous awards and honors, is a member of many medical organizations, sits on several advisory boards and committees, and has authored and co-authored 390 publications. In reaching his opinions, Dr. Lucchesi reviewed a significant amount of materials. These materials along with his experience, training, and education form the basis for his testimony.

Merck challenges Dr. Lucchesi's testimony for several reasons. First, Merck contends that Dr. Lucchesi cannot testify as to what Merck knew or whether Merck acted properly in developing and marketing Vioxx. The Court reserves ruling on this issue until such time as it is presented at trial. At that time, the Court will have a clearer basis for making its ruling.

Second, Merck asserts that Dr. Lucchesi does not have a scientifically reliable basis to

opine on general causation. Merck's assertion is incorrect. Just like Professor Ray, Dr. Lucchesi based his opinion on a thorough review of the scientific literature. In addition, he drew proper and supported inferences from the studies he reviewed. His opinion is based on reliable, scientific data.

Lastly, Merck asserts that Dr. Lucchesi cannot testify as to the specific cause of Mr. Irvin's death. Merck is correct. Dr. Lucchesi is neither a cardiologist or pathologist. As such, he cannot testify as to what was the specific cause of Mr. Irvin's death. Dr. Lucchesi, however, is not opining as to what specifically caused Mr. Irvin's death. Instead, based on the facts of this case, he is testifying as to what role Vioxx might have played in Mr. Irvin's death. This opinion is based upon his knowledge of Vioxx and his belief that it causes increased risks of cardiovascular events combined with his education as a medical doctor and professional experience. He is qualified to state this opinion, and it is based upon proper methodology.

iv. Colin M. Bloor, M.D. and Joseph L. Burton, M.D.

The Plaintiff designated both Dr. Bloor and Burton to testify as experts regarding the alleged role of Vioxx in Mr. Irvin's death.

a. Merck's Position

Merck asserts several reasons why Dr. Burton's opinion should not be admitted. First, Merck contends that Dr. Burton does not have the necessary training and experience to opine on general causation. Merck points out that Dr. Burton is a pathologist who has never done any research on any NSAIDs in general or COX-2 inhibitors in particular. In addition, he has never published anything on sudden cardiac death. He is not a pharmacologist and is relying on plaintiff's other experts to address Vioxx pharmacological mechanisms. He admits he is not an

expert in clinical design or statistics and that he is not qualified to analyze and interpret clinical and epidemiological data concerning Vioxx.

Next, Merck contends that Dr. Burton's general causation theories are not supported by the scientific literature on which he relied. He admitted that his opinions on Vioxx's causation of cardiovascular events based upon a prostacyclin and thromboxane imbalance are derived only from other experts. In addition, he cannot determine whether this information is correct or not.

Third, Merck asserts that Dr. Burton has no reliable scientific evidence supporting the hypothesized mechanisms by which he believes Vioxx could cause sudden cardiac death. This assertion is based on the fact that Dr. Burton cannot cite any studies supporting him and he is aware that there are competing views regarding whether Vioxx can cause vasoconstriction.

Fourth, Merck asserts that Dr. Burton does not have reliable scientific evidence to opine on specific causation. As a pathologist, Merck concedes that Dr. Burton may be able to opine that a thrombus formed in Mr. Irvin's artery and that a thrombus led to a sequence of events which resulted in Mr. Irvin's death. This, however, is completely different from Dr. Burton's ability to testify that the thrombus was caused by Mr. Irvin's Vioxx use. Essentially, Dr. Burton's testimony that Vioxx caused Mr. Irvin's death is based completely on the assumption that Vioxx causes an prothrombotic state. He does not have any basis for that conclusion other than the testimony of the Plaintiff's other experts.

Merck makes the same arguments regarding Dr. Bloor.

b. Plaintiff's Position

The Plaintiff's opposition is similar to that concerning Dr. Gandy. Dr. Burton and Bloor are pathologists. As such, they are not familiar with pharmacology. In reaching their opinions,

however, the doctors do not need to be familiar with every step in the Vioxx process. Instead, they may rely on the expertise of experts in other areas. Here, the doctors have relied on the expertise of the Plaintiff's other experts and formed an opinion based on that review as to what was the cause of Mr. Irvin's death.

c. Court's Ruling

Both Dr. Bloor and Burton are pathologists. Dr. Bloor received a B.S. from Denison University and a M.D. from Yale University School of Medicine. He has served as professor of pathology at the University of California San Diego for the last thirty-one years. Prior to that, he held various research positions. He is a member of numerous medical organizations, editorial boards, and committees. He has received several honors and awards for his work. He has authored and co-authored 473 publications.

Dr. Burton received a B.A. and a M.D. from Emory University. He is a licensed physician in Georgia. He has served as a medical examiner for over twenty-five years. Currently, he is Chief Medical Examiner, Emeritus for DeKalb County, Georgia, and Senior Consulting Pathologist for Cobb, Gwinnett, and Paulding County, Georgia. He has served in other medical capacities, has received several special appointments, and is a member of numerous professional associations. In addition, he has presented a vast number of articles at medical conferences. In reaching their opinions, Dr. Bloor and Dr. Burton both reviewed the relevant literature on Vioxx, fourteen expert reports from other designated experts, and Mr. Irvin's medical and autopsy reports.

The crux of Merck's argument to exclude Dr. Bloor's and Dr. Burton's testimony is that they are not qualified to testify that Vioxx was the cause of Mr. Irvin's death and that their

testimony is based on scientifically unreliable evidence. Merck acknowledges that they are both expert pathologists, but Merck asserts that this, by itself, does not qualify them to testify as to how Vioxx caused Mr. Irvin's death. Merck is somewhat correct. Neither Dr. Bloor nor Dr. Burton have done any research on NSAIDs, published anything on NSAID, or have any pharmacological experience. They have, however, read the relevant materials and have a basic understanding of Vioxx and its hypothesized prothrombotic effects. They are entitled to rely on these materials, which are relevant and reliable, in reaching their own conclusions just as an orthopaedic surgeon, who is not an expert X-Ray technician and has no knowledge of the mechanics of an X-Ray machine, can rely on an X-Ray to diagnose a broken arm. Essentially, Merck is not attacking their methodology. Instead, Merck is attacking the level of their understanding. This is fodder for cross-examination, not exclusion under *Daubert*. Accordingly, Merck's motion to exclude the testimony of Dr. Bloor and Dr. Burton is denied. The anticipated testimony from these witnesses seems to be repetitive and may be excluded by the Court for this reason.

v. Thomas Baldwin, M.D.

The Plaintiff has designated Dr. Baldwin to opine that Mr. Irvin's use of Vioxx for less than 60 days created an increased risk of a sudden cardiac death and that Vioxx caused or substantially contributed to the development of an acute thrombosis which resulted in coronary occlusion, subsequent cardiac ischemia, a clinically evolving acute myocardial infarction, and the sudden death of Mr. Irvin.

a. Merck's Position

First, Merck asserts that Dr. Baldwin is not qualified to render opinions on general

causation because of his lack of training and experience and his lack of the requisite study. In regards to experience and training, Dr. Baldwin has little experience with Vioxx. He has never done any research on NSAIDs or COX-2 inhibitors. He has never treated a patient who had taken Vioxx and suffered a thrombotic event. In short, Merck alleges that Dr. Baldwin, in his practice, has never seen a patient like Mr. Irvin—one who took Vioxx and suffered a fatal thrombotic event.

In regards to research, Dr. Baldwin cannot point to any specific piece of literature or data that supports his view that short-term ingestion of Vioxx increases the risk of cardiovascular events. In addition, Merck asserts that the literature which Dr. Baldwin read does not support his position.

Merck also contends that the studies relied on by Dr. Baldwin do not support the hypothesized mechanism by which Vioxx could cause sudden cardiac death. This assertion is based on Merck's challenges concerning the Fitzgerald hypothesis.

Lastly, Merck asserts that Dr. Baldwin has been unable to specifically show that Vioxx, as opposed to atherosclerosis, obesity, or a sedentary lifestyle, caused Mr. Irvin's death. Moreover, Dr. Baldwin does not know specifically how Mr. Irvin's clot formed and acknowledges that clots can form in the absence of Vioxx. Therefore, Merck claims Dr. Baldwin cannot show that Vioxx caused Mr. Irvin's death to a reasonable degree of medical certainty.

b. Plaintiff's Position

Basically, the Plaintiff's position is similar to its defense regarding Dr. Gandy. The Plaintiff contends that there are countless numbers of articles supporting the position that Vioxx causes an imbalance in the homeostasis between thromboxane and prostacyclin. In addition, the

Plaintiff defines Dr. Baldwin's interpretation of this data and ultimate conclusion as biological plausibility. Dr. Baldwin does not have to explain precisely how an agent causes a disease, but instead must only provide a judgment about the plausibility that an agent causes a disease.

c. Court's Ruling

Dr. Baldwin received a B.S. from Kansas State University and a M.D. from the University of Kansas School of Medicine. Following his graduation from medical school, Dr. Baldwin interned at and did his residency at the University of Kansas School of Medicine, Internal Medicine. After that, he was a fellow at the University of Kansas School of Medicine, Cardiovascular Medicine. Since that time, he has been a practicing cardiologist. He is licensed in both Kansas and Missouri, is a diplomat in the American Board of Internal Medicine and the American College of Cardiology, is a member of the American College of Physicians, and is a fellow in the American College of Cardiology. In addition, he has written three publications.

Merck's challenge to Dr. Baldwin is quite similar to its challenge of Dr. Gandy. Like Dr. Gandy, Dr. Baldwin's expert report is quite short and conclusory. It is only twelve pages long. The first seven pages concern his qualifications, background, and materials reviewed. The last five pages consist of a recitation of the facts and seven paragraphs of conclusions. Furthermore, Dr. Baldwin's deposition testimony also reveals his lack of understanding. During repeated points in his deposition testimony, Dr. Baldwin made assertions that certain studies supported his position, but was unable to name or describe the studies he was relying on. At other points in his deposition, Dr. Baldwin admitted that he did not understand how to interpret certain studies.

Similar to Dr. Gandy, however, the Court acknowledges that Dr. Baldwin is a cardiologist who is qualified to testify as an expert regarding Mr. Irvin's cardiac condition at his time of

death. Moreover, Dr. Baldwin did review all the relevant materials and is entitled to rely on pharmacological and epidemiological experts. As such, his methodology was proper. Merck will be allowed to attack Dr. Baldwin's understanding during cross-examination, but will not be able to entirely exclude him based on it.

vi. Richard M. Kapit, M.D.

Plaintiff has designated Dr. Kapit as an expert to testify that: (1) Merck was not forthcoming with the FDA with respect to the risks of Vioxx; (2) Merck should have changed the label without the FDA's approval; (3) Merck had an ethical or moral obligation to ensure the safety of the medication; (4) Merck was motivated by competition to withhold information regarding the danger of Vioxx; and (5) Merck violated FDA requirements.

a. Merck's Position

First, Merck contends that Dr. Kapit's testimony regarding the inadequacy of Merck's interactions is preempted by *Buckman Co. v. Plaintiffs' Legal Comm.*, 531 U.S. 341, 350, 353 (2001).

Second, Merck asserts that Dr. Kapit's testimony is neither scientific nor technical evidence and, thus, is not admissible under Rule 702. As far as his testimony as to what should have been done, Merck argues that this testimony is unreliable because it is purely speculative, irrelevant to legal liability, and likely to prejudice the jury. In addition, Merck asserts that this testimony is unreliable because it is based solely on Dr. Kapit's subjective determination of what is ethical or proper or what Merck's state of mind was. This is not proper scientific methodology. In fact, according to Merck, it is not scientific at all.

Third, Merck asserts that Dr. Kapit is not an expert as to Merck's state of mind. Dr.

Kapit reached his opinions as to Merck's state of mind by viewing internal Merck documentation. Merck argues that he is in no better position to evaluate Merck's state of mind based on these documents than a jury would be because this issue requires no special skill.

b. Plaintiff's Position

As to the *Buckman* argument, the Plaintiff asserts that *Buckman* is inapplicable because it concerned claims of fraud on the FDA. In this case, the Plaintiff argues that there is no claim of fraud on the FDA, and courts which have addressed *Buckman* have concluded that evidence relating to a defendant's conduct or representations in the course of FDA proceedings is admissible in support of the plaintiff's state law product liability or tort causes of action. *See, e.g., Globetti v. Sandoz Pharm. Corp.*, 2001 WL 419160 (N.D. Ala. 2001); *Eve v. Sandoz Pharm. Corp.*, 2002 WL 181972 (S.D. Ind. 2002).

Additionally, the Plaintiff asserts that Merck mischaracterizes Dr. Kapit's testimony. The Plaintiff contends that Dr. Kapit's testimony is based upon his experience and knowledge as a FDA regulatory official with the responsibility for interacting with pharmaceutical companies on issues of drug safety. Based upon his experience and federal regulations, Dr. Kapit opined that once the VIGOR results were made known, Merck had an obligation to inform the medical profession of a serious medical question regarding the safety of Vioxx. In addition, based on his experience, Dr. Kapit opined on several other Merck-FDA issues. The Plaintiff argues that these opinions were not based on his purely subjective views, but upon his background, expertise, and knowledge of the regulations governing drug safety.

As far as Merck's state of mind, the Plaintiff contends that Dr. Kapit is not attempting to read the mind of Merck and its employees, but translate to the jury the significance of certain

documents and how these documents fit into the complex regulatory scheme which governs the conduct of pharmaceutical companies. The Plaintiff asserts that Mr. Kapit is qualified to testify as to these matters based on his knowledge and expertise of FDA procedures, regulations, and regulatory guidelines as well as his first hand knowledge of a pharmaceutical company's obligations and required disclosures regarding their drugs.

c. Court's Ruling

Dr. Kapit received a B.A. from Columbia University and a M.D. from N.Y.U. School of Medicine. He did his residency in Psychiatry at the National Institute of Mental Health, Overholser Division of Training and Research, St. Elizabeth's Hospital, Washington, DC. After that, he worked as a Medical Officer at the Bureau of Forensic Psychiatry, Department of Human Services for five years while also running his own private practice. Following this employment, he spent the next 18 years as a Medical Officer: first within the Division of Neuropharmacological Drug Products, next within the Clinical Trials Bureau, and finally within the Division of Epidemiology, all of which were within the FDA. For the past three years, Dr. Kapit has been the President of MD-Writer, LLC, which does research, preparation, and composition of medical articles and scientific articles for newspapers, magazines, and other. publications as well as consulting on matters related to pharmaceuticals and their adverse effects.

While employed by the FDA, he made recommendations about unapproved and approved pharmaceuticals, about the adequacy of Investigational New Drug Applications and New Drug Applications supporting the approval of pharmaceuticals, about labeling, and about postmarketing surveillance reports related to pharmaceuticals. His recommendations often focused on whether pharmaceuticals were safe for human beings.

The Court finds that Dr. Kapit is qualified to testify as an expert witness in this case. First, as stated in the Court's ruling on Professor Ray, *Buckman* is not applicable to this case or issue at all. Second, just like Dr. Arrowsmith-Lowe's testimony, Dr. Kapit's testimony will help the jury understand the applicable FDA regulations and Merck's responses. He is more than qualified to testify on this. Lastly, regarding Merck's state of mind, Dr. Kapit may not testify as to what Merck was thinking. Instead, his testimony should focus on the significance of certain documents and how these documents fit into the FDA's regulatory scheme. If Dr. Kapit attempts to testify at trial as to Merck's state of mind, Merck should raise this objection at that time. Until then, the Court reserves ruling on this issue.

vii. John W. Farquhar, M.D.

The Plaintiff has retained Dr. Farquhar, a cardiologist, to offer his opinion that Vioxx causes cardiovascular disease, hypertension, and that the risk of heart attack associated with taking Vioxx begins when the patient first takes Vioxx and continues throughout the period of usage. The Defendants asserts that Dr. Farquhar's opinions on general causation lack a reliable scientific basis and that his opinion regarding the Defendant's state of mind is inadmissable because he is not an expert on this subject and his opinions are irrelevant.

a. Merck's Position

First, Merck contends that Dr. Farquhar does not have a reliable scientific basis on which to render an opinion as to whether Vioxx generally causes an increased risk of thrombotic cardiovascular risk. Specifically, Merck contends that Dr. Farquhar misinterpreted the APPROve trial and the other clinical trials upon which his opinion rests, that the observational studies he reviewed do not supply a reliable scientific basis for his opinions, and that his opinion is

inadmissable because he did not offer a scientifically valid explanation for the mechanism by which he contends that the short-term use of Vioxx causes cardiovascular diseases.

Second, Merck contends that Dr. Farquhar cannot testify as to Merck's knowledge or whether Merck acted appropriately. Specifically, Dr. Farquhar is not an expert as to Merck's state of mind. Also, Dr. Farquhar's opinion is based on a review of internal Merck documents and selected deposition testimony. Merck contends that these documents and testimony are not the type of evidence that require expert testimony, and that a jury will be able to understand this evidence without Dr. Farquhar's assistance. Moreover, Merck asserts that Dr. Farquhar's personal opinions as to whether Merck acted appropriately are irrelevant and unreliable.

b. Plaintiff's Position

In response, the Plaintiff asserts that Dr. Farquhar's testimony as to causation is supported by the APPROVe study as well as the VIGOR, ADVANTAGE, and the Rheumatoid Arthritis studies. In addition, the Plaintiff contends that Dr. Farquhar is well qualified to testify as to biologically plausible mechanisms and the results of statistical analyses that he directed. Regarding testimony as to appropriateness, the Plaintiff stipulates that Dr. Farquhar will not testify about the ethics of Merck's conduct. Instead, the Plaintiff argues that he will testify that Merck made unreasonable and unsupported interpretations of its scientific data. The Plaintiff contends that he will not be attacking Merck's business ethics, but will be testifying that Merck departed from the scientific method.

c. Court's Ruling

Dr. Farquhar is a Professor Emeritus of Medicine at the Stanford University School of Medicine. He has been a Professor of Medicine since 1973. He was an Assistant Professor from

1962-1966 and an Associate Professor from 1966-1973. He is also a Professor of Health Research and Policy at Stanford. He has held this position since 1978.

Dr. Farquhar received an A.B. in Medicine from the University of California School of Medicine, Berkeley and an M.D. from the University of California School of Medicine, San Francisco. He was an intern and resident at U.C. San Francisco, a resident at the University of Minnesota School of Medicine, Minneapolis, and a postdoctoral fellow with the United States Health Service at U.C. San Francisco.

In his career, Dr. Farquhar has received a litany of awards and is a member of numerous medical organizations. His principal areas of research include epidemiology and cardiovascular risk factors. He was the Director of the Preventative Cardiology Clinic, Stanford Medical Center from 1978 to 1996 and has been Co-Director since that time. From 1973 to 1984, he served as the Director, Stanford Heart Disease Prevention Program. He also maintained an active clinical cardiology practice from 1962 to 2001.

Dr. Farquhar has authored or co-authored approximately 200 peer-reviewed articles, predominantly in the fields of epidemiology and cardiovascular risk factors such as cholesterol, hypertension, smoking, and atherosclerosis. He has also co-authored one book and authored another book. Dr. Farquhar based his opinion on his review of the literature pertaining to COX-2 inhibitors and his own training and experience in the fields of epidemiology and cardiology.

Merck challenges Dr. Farquhar on two grounds. First, Merck asserts that Dr. Farquhar's opinion is based on scientifically unreliable information. This assertion is unpersuasive. Dr. Farquhar has reviewed all the relevant literature on Vioxx. The materials he reviewed are the same materials reviewed by Merck's experts. Dr. Farquhar, however, has reached a different

conclusion than Merck's experts. Differing conclusions are permissible under Rule 702; improper methodology is not. If Dr. Farquhar's reliance on these studies is improper, than the same reliance by Merck's experts is improper. As evidenced by his thorough and explanatory ninety-five page expert report, Dr. Farquhar is qualified and relied on proper methodology.

Second, to the extent that Dr. Farquhar may testify as to Merck's state of mind, the Court reserves ruling on this issue until it is presented at trial. At that time, the Court will have a clearer basis for making its ruling.

C. *Daubert*-Like Motions

i. Testimony that Adverse Thrombotic Cardiac Events Occur Only if Vioxx is Ingested 18 Months or Longer

The Plaintiff asserts that the Defendant's position that Vioxx only causes prothrombotic effects if ingested for 18 months or longer is scientifically unreliable because this opinion is based upon a speculative post hoc sub group analysis by Merck from the APPROVe study, flies in the face of the results from Merck's own clinical trials and other epidemiologic studies, and is wholly without any biological plausibility. In opposition, Merck claims that the APPROVe study was reliable, its opinion is supported by its own clinical trials, and its opinion is supported by substantial literature and testing.

This motion concerns the results of the APPROVe study. The Plaintiff has interpreted the data collected by the APPROVe to mean that Vioxx can cause adverse thrombotic cardiovascular events after short-term use. Her position is based on adjudicated data from the study. Merck, however, takes the position that the APPROVe study shows that Vioxx only causes adverse thrombotic cardiovascular events after long-term use. Its position is based on confirmed data.

In essence, both parties are relying on the same test. Both parties agree that the test was conducted properly. The parties are disagreeing as to the conclusions reached by the other parties. As a gatekeeper, the Court must evaluate methodology, not conclusions. The proper forum for challenging conclusions is at cross-examination, not in a *Daubert* motion. Accordingly, the Plaintiff's motion to exclude this testimony is denied.

ii. Testimony that Vioxx is the Same as All NSAIDs Regarding Cardiotoxic Effects

The Plaintiff asserts that Merck's position that Vioxx is the same as all NSAIDs regarding cardiotoxic effects is scientifically unreliable because it is based on an untested hypothesis; it has not been subjected to peer review or publication; it is impossible to know the rate of error or potential rate of error given its broad-sweeping application to all NSAIDs; there is no indication that it is generally accepted in the relevant scientific community; and there is a huge analytical gap between existing scientific certainty and a hypothetical opinion that Vioxx is like all other NSAIDs, with the exception of naproxen. Merck contends that each of the Plaintiff's arguments is incorrect and that its opinion is scientifically reliable.

Merck's position that Vioxx, based on all the present information, is the same as all NSAIDs regarding cardiotoxic effects is predominantly based on an April 6, 2005 FDA Decision Memorandum reaching this conclusion. In addition, this position is also supported by an analysis presented at Health Canada. The Plaintiff contends that these two materials are scientifically unreliable because they are based on limited, unpublished, and non-peer-reviewed data.

In reaching the conclusions set forth in its April 6, 2005 Decision Memorandum, the FDA' advisory panel reviewed a large body of data. It reviewed an internal review by the FDA's Center for Drug Evaluation and Research of available data regarding the cardiovascular safety

issues for COX-2 inhibitors and NSAIDs. In addition, it reviewed the regulatory histories, New Drug Applications, and postmarketing databases of the various NSAIDs. It reviewed FDA and sponsor background documents prepared for the advisory committee meeting. It reviewed all the materials and data submitted by and presentations made by interested parties. Lastly, the FDA Memorandum itself analyzes the results of the numerous clinical trials and epidemiological studies concerning NSAIDs that the advisory committee reviewed in reaching its conclusions. The Court finds that the FDA's conclusions were reached after a review of scientifically reliable data.

The Plaintiff is primarily challenging the conclusions reached by the FDA. Once again, it is not the Court's task to scrutinize conclusions. The Court is charged with the duty of ensuring proper methodology. Here, the FDA's Decision Memorandum is based on proper methodology. Accordingly, the Plaintiff's motion is denied.

iii. Testimony that Naproxen is Sufficiently Cardioprotective to Explain Excess Cardiac Risk in VIGOR

The Plaintiff asserts that the Defendant's position that naproxen is sufficiently cardioprotective to explain the excess cardiac risks in the VIGOR study is scientifically unreliable because it has never been tested in a controlled clinical trial, it has never been accepted as scientifically true in a peer reviewed publication; it has an unknown rate of error and/or a high rate of error since it has been proven to the contrary in large epidemiological studies; it has not been generally accepted within the relevant scientific community; and there is an overwhelming analytical gap between the underlying data and the opinion proffered. Merck, however, asserts that its opinion is scientifically reliable.

The Court finds that there is significant, scientifically reliable information supporting

Merck's contention that naproxen is sufficiently cardioprotective to explain the VIGOR test results. In reaching this position, Merck relies on a wide array of materials. First, two peer-reviewed studies supported Merck's position. One of the studies was published in 2000 by Merck and the other was published in 2004 by an independent author. Second, several other clinical and basic research studies suggest that naproxen has cardioprotective effects. Moreover, naproxen's own warning label states that it may reduce platelet aggregation and prolong bleeding. Third, numerous observational epidemiologic studies have detected a statistically significant lower rate of cardiovascular events for patients taking naproxen. Lastly, the results of the TARGET study lend support to Merck's position. TARGET consisted of two sub-trials comparing lumiracoxib, a COX-2 inhibitor, with ibuprofen and naproxen. The results of TARGET revealed significantly less myocardial infarctions and adverse cardiovascular events in the naproxen sub-trial than in the ibuprofen sub-trial. The cumulative effect of all these materials tends to support Merck's position and corroborate the evidence it is relying on. As such, the Court finds that Merck's position is based on scientifically reliable evidence. Accordingly, the Plaintiff's motion is denied.

iv. Testimony that Merck Could Not Provide Risk Information through Labeling or Marketing Without Prior Approval of the FDA

The Plaintiff asserts that the Defendant's position that it could not provide risk information through labeling or marketing without prior approval of the FDA is factually untrue and legally unsupported. As such, the Plaintiff contends that it is not helpful to the trier of fact and is contrary to what is considered to constitute generally accepted and reliable scientific testimony. Merck argues that FDA regulations and its past interactions with the FDA support its position that it could not change its label without prior FDA approval.

The Plaintiff argues that under the applicable FDA regulations and guidelines Merck had authority to strengthen its warning label at any time. Merck contends that it did not have this authority. This disagreement stems from the classification of the label change. If the Vioxx label change is classified as "moderate" under the applicable guidelines, then the Plaintiff is correct. If the Vioxx label change is classified as "major" under the applicable guidelines, then Merck is correct. Merck is seeking to introduce evidence that the Vioxx label change was major and, as such, it could not make the label change without prior FDA approval. The Court finds that there is nothing false or legally unsupportable concerning Merck's position. Accordingly, the Plaintiff's motion is denied.

v. Testimony of Plaintiff's Experts Regarding Causation

Merck has moved to exclude the testimony of the Plaintiff's experts to as whether Vioxx 25 mg causes an increased risk of thrombotic cardiovascular events because this testimony is based on scientifically unreliable evidence. In addition, the Defendant has moved to exclude any expert testimony as to whether Mr. Irvin's ingestion of Vioxx caused his death because it is based on scientifically unreliable evidence.

The Plaintiff contends that there is more than enough scientific literature and data to support the position that Vioxx taken at 25 mg doses increases the risk of thrombotic cardiovascular events.

There have been at least several clinical trials and observational studies which reveal that Vioxx can increase the risk of cardiac incidents. The issue, at least in this case, is temporal. Merck points out that no randomized, blind trials with a placebo counterpoint have specifically concluded that Vioxx can cause cardiac incidents within the first month of consumption. The

Plaintiff argues that that was not the objective or goal set for these studies. So, it is not surprising.

The Plaintiff, however, points out that the raw data from these studies shows that the cardiac incidents, including sudden death, occurred within the first month. She also points to a significant number of peer reviewed articles and observational studies which appear in credible and well recognized medical publications and support her conclusion.

In essence, both the Plaintiff and Merck rely on the same material. They simply interpret it differently and reach contrary conclusions. The Court's role as gate-keeper is to scrutinize the methodology, not the conclusions. Accordingly, Merck's motion is denied.

IV. CONCLUSION

For the foregoing reasons, the Court rules that: (1) the Plaintiff's Motion to Exclude the Testimony of Dr. Thomas Wheeler is Denied; (2) the Plaintiff's Motion to Exclude the Testimony of Dr. Janet Arrowsmith-Lowe is Denied; (3) the Plaintiff's Motion to Exclude the Testimony of Doctors Frank Lanza and Merlin Wilson is Denied; (4) the Plaintiff's Motion to Exclude the Testimony of Dr. David Silver is Denied; (5) the Plaintiff's Motion to Exclude Testimony that Adverse Thrombotic Cardiac Events Occur Only if Vioxx is Ingested 18 Months or Longer is Denied; (6) the Plaintiff's Motion to Exclude Testimony that Vioxx is the Same as All NSAIDs Regarding Cardiotoxic Effects is Denied; (7) the Plaintiff's Motion to Exclude Testimony that Naproxen is Sufficiently Cardioprotective to Explain the Excess Cardiac Risk in VIGOR is Denied;(8) the Plaintiff's Motion to Exclude Testimony that Merck Could Not Provide Risk Information Through Labeling or Marketing Without Prior Approval of the FDA is Denied; (9) Merck's Motion to Exclude the Testimony of Winston Gandy, Jr., M.D. is Denied;

(10) Merck's Motion to Exclude the Testimony of Wayne A. Ray, Ph.D. is Granted in Part and Denied in Part; (11) Merck's Motion to Exclude the Testimony of Benedict Lucchesi, M.D., Ph.D., M.S., F.A.H.A. is Denied; (12) Merck's Motion to Exclude the Testimony of Colin M. Bloor, M.D., and Joseph L. Burton, M.D. is Denied; (13) Merck's Motion to Exclude the Testimony of Thomas Baldwin, M.D. is Denied; (14) Merck's Motion to Exclude the Testimony of John W. Farquhar, M.D. is Denied; (15) Merck's Motion to Exclude the Testimony of Richard M. Kapit, M.D. is Denied; and (16) Merck's Motion to Exclude Evidence of the Plaintiff's Experts Regarding Causation is Denied.

New Orleans, Louisiana, this 18th day of November, 2005.

UNITED STATES DISTRICT JUDGE