Reflections on *Milward* and Expert Testimony
by Raphael Metzger, Esq.*

**Introduction**

The admissibility of expert opinion testimony, particularly in cases involving scientific and medical questions regarding medical causation, is an evolving issue that continues to attract attention from many sectors of the legal community. Even before the Supreme Court’s decision in *Daubert*, trial and appellate courts had struggled with the development and application of appropriate standards for admissibility. Complicating the situation is that in *Daubert* the Supreme Court deputized trial courts as “gatekeepers” of scientific evidence. This new role for judges has proven to be an ill-fitting judicial robe. Indeed, Justice Rehnquist foresaw difficulties with such a role for judges and, in his partial dissent in *Daubert*, cautioned against trial courts acting as “amateur scientists” in evaluating opinion testimony of scientific and medical experts.

In this article, I suggest that appellate courts in California and other jurisdictions have generally rejected a scientific “gatekeeper” role for judges as unwise, impractical, and injurious to the constitutional right to trial by jury. Although a recent trend seems to promote judicial gatekeeping at the expense of the Seventh Amendment right to trial by jury, judges should be circumspect in exercising their newly acquired function as gatekeepers of scientific evidence, less they exclude good science (i.e., scientific evidence that scientists themselves utilize) due to their own scientific misunderstanding or ignorance, their search for facile or formulaic solutions, and zeal in disposing of increasing numbers of cases involving scientific issues that fill their dockets.

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The Milward Case

One day I received a telephone call from a lawyer in Texas about a gentleman named Brian Milward who was exposed to benzene and developed Acute Promyelocytic Leukemia (“APL”). The lawyer told me that Mr. Milward’s case was in federal court in Massachusetts and the defense had filed a Daubert motion claiming that benzene doesn’t cause APL. He asked me what I thought. I told him that the defense’s claim was absurd -- that since at least the late 1970s it had been generally accepted that benzene causes Acute Myelogenous Leukemia (AML), and APL is just a type of AML. I told the lawyer that I had litigated several APL cases and no defendant had ever made such a novel claim before. I reassured the lawyer that the defense’s claim had no merit and asked him who his expert was. He told me it was Dr. Martyn Smith. I had consulted with Dr. Smith for many years and knew him to be the leading expert on the toxicology of benzene and the causes of leukemia in the U.S. I told the lawyer he had selected the best expert for the case and to oppose the motion. And I asked him to keep me posted.

Months later the lawyer called again, telling me that the district court granted the Daubert motion, finding that the scientific evidence did not support a causal link between benzene and APL, and excluding Dr. Smith’s opinion. I was flabbergasted. The lawyer told me that his client wanted to appeal the decision and asked whether I would be willing to write an amicus brief for the appeal. My immediate thoughts were that I was too busy litigating my own benzene cases and that the appeal was doomed to fail because of Joiner, in which the Supreme Court held that Daubert determinations are reviewed under the abuse of discretion standard. But then I realized the importance of the case to the law and society – that if an internationally renowned expert like Dr. Smith (whose laboratory does original research regarding benzene and leukemia) could not render his causation opinion in court, no expert could qualify to testify about the relationship between benzene and leukemia in federal court. If so, all workers suffering from cancer and other occupational diseases from toxic chemical exposure could be denied access to justice. I agreed to write an amicus brief in support of Mr. Milward’s case in the First Circuit.
How did the district court conclude that Dr. Smith’s opinion that benzene causes APL was so novel that it could not be presented to a jury? The answer, I think, is an artifact of epidemiology. While epidemiologic studies had consistently reported statistically significant increases of AML in cohorts of workers exposed to benzene, there were few studies regarding the subtypes of AML. AML is itself an uncommon disease, with an incidence of a few cases per 100,000 population. There are 8 main morphological subtypes of AML, each being rare and having an incidence of just a few cases per 1 million population. The cohort studies that had been done were of workforces that were too small to detect statistically significant increases in the occurrence of AML subtypes. So if statistically significant epidemiologic studies of AML subtypes were required to prevail under Daubert, one could not prove that benzene causes any subtype of AML, even though epidemiology had shown that benzene exposure causes AML.

Anyway, I began drafting a brief, summarizing the scientific and medical evidence regarding benzene and APL. While drafting, something unexpected happened. Years earlier the petroleum industry had funded large epidemiology studies in China to refute the conclusion of the National Cancer Institute that benzene causes leukemia at low doses and likely also causes non-Hodgkin’s lymphoma. One of these studies was the first epidemiologic study of benzene and AML subtypes. Sponsored by some of the same defendants in the Milward case, the study was published while I was drafting the amicus brief. Not only did this study report a doubling of the risk of APL from benzene exposure of borderline statistical significance, it found that APL was the subtype of AML most strongly associated with exposure to benzene. Wong, O., et al., “A hospital-based case-control study of acute myeloid leukemia in Shanghai: analysis of environmental and occupational risk factors by subtypes of the WHO classification,” Chem. Biol. Interact. 184(1-2):112-128 (2010).

I included a discussion of the new study in the draft and sent it to knowledgeable hematologists, oncologists, toxicologists, and occupational medicine experts for review and comment. All these experts kindly made constructive comments which were incorporated into the brief and all but one expert agreed to have the brief filed in their names. The one expert who
would not sign onto the brief explained that although he thought the brief accurately reflected the science, he did not want to be an *amicus* because he felt that courts have no business deciding medical and scientific issues and judges are not qualified to assess the merits of Dr. Smith’s research. I found this expert’s position interesting, particularly in light of Justice Rehnquist’s partial dissent in *Daubert*: “I do not doubt that Rule 702 confides to the judge some gatekeeping responsibility in deciding questions of the admissibility of proffered expert testimony. But I do not think it imposes on them either the obligation or the authority to become amateur scientists in order to perform that role.”  *Daubert, supra* (Rehnquist, C.J., concurring and dissenting opinion)

The brief was filed on behalf of 28 amici who represented a substantial portion of the medical and scientific community knowledgeable about benzene and leukemia. The amici supported both Dr. Smith’s methodology and his conclusion that benzene causes APL. The defendants moved to strike the amicus brief, but did not submit a brief by any independent physicians or scientists contending that Dr. Smith’s methodology was incorrect or that benzene does not cause APL. The First Circuit was therefore faced with a situation where a trial court had concluded that there was no scientific consensus that benzene causes APL, but the actual scientific community had weighed in with the opposition conclusion.

Happily, the result was favorable to Mr. Milward, to Dr. Smith, and to workers who get leukemia from exposure to benzene and seek justice through our courts. Faced with strong medical and scientific evidence and a consensus of medical and scientific experts in favor of causation, the First Circuit reversed the decision of the district court, finding that it had abused its discretion in excluding the causation opinion testimony of Professor Smith.  *Milward v. Acuity Specialty Products* (1st Cir. 2011) 639 F.3d 11.

*Milward* is an important case regarding the admissibility of expert testimony under *Daubert* for many reasons. But I believe the most significant aspect of the case is that the First Circuit approved of the “weight of the evidence” methodology used by Dr. Smith in reaching his opinion on causation. This methodology is hardly novel. Reduced to its essence, it merely stands for the proposition that an expert should consider all the relevant scientific evidence and
reach a reasoned conclusion of causality based on the totality of the scientific evidence. This is, in fact, how scientific organizations like the International Agency for Research on Cancer determine whether a chemical is a human carcinogen. Cogliano, V.J., et al., “The Science and Practice of Carcinogen Identification and Evaluation,” Environ. Health Perspect. 112:1269-1274 (2004). Defense lawyers have claimed, however, that each study must be considered individually and if each study individually does not prove causation, the totality of the studies cannot prove causation. This is a specious argument, akin to requiring a plaintiff to prove his whole case with just one witness. It is rare that a single study does or can prove causation. Rather, causation is multifactorial and a matter of reasoned judgment based upon an accumulation of medical and scientific evidence from various types of studies. See, Carbone, M., et al., “Modern Criteria to Establish Human Cancer Etiology,” Cancer Research 64:5518-5524 (2004).

Milward also represents an important limitation on trial court discretion under Daubert to exclude well-reasoned scientific and medical opinion. It is a necessary check upon a district court’s discretion to dismiss cases of workers with occupational cancers based on the court’s own view of scientific evidence. The critical point is that trial courts must resist the temptation, as Justice Rehnquist pointed out in Daubert, to play “amateur scientist.”

**Limited Acceptance and Criticism of Daubert**

While Daubert is the law in all federal courts, the case and its progeny have not been accepted by most state courts. In the 10 years after the Supreme Court decided Daubert, only nine states had explicitly or implicitly adopted the full holdings of the Daubert trilogy, six states had adopted the reasoning and holdings of Daubert and Kumho Tire but not Joiner, seven states had adopted Daubert’s reasoning but not Kumho Tire, and only five states utilized the Daubert factors in applying their own tests. Bernstein & Jackson, “The Daubert Trilogy in the States,” 44 Jurimetrics J. 351 (2004). Notably, some of the most populous states have rejected Daubert in favor of Frye or other standards, including California, Florida, Illinois, New York, New Jersey,
Michigan, North Carolina, and Pennsylvania. Thus, while *Daubert* applies in federal courts, it does not apply in most states or in most courts.

Several courts have criticized *Daubert* for creating a role for judges as gatekeepers of scientific evidence, finding that judges are ill-equipped to fulfill such a role. Indeed, on remand from the Supreme Court in *Daubert*, the Ninth Circuit appeared mystified by the role judges were to undertake: “Though we are largely untrained in science and certainly no match for any of the witnesses whose testimony we are reviewing, it is our responsibility to determine whether those experts’ proposed testimony amounts to ‘scientific knowledge,’ constitutes ‘good science,’ and was ‘derived by the scientific method.’ The task before us is more daunting still when the dispute concerns matters at the very cutting edge of scientific research, where fact meets theory and certainty dissolves into probability. As the record in this case illustrates, scientists often have vigorous and sincere disagreements as to what research methodology is proper, what should be accepted as sufficient proof for the existence of a ‘fact,’ and whether information derived by a particular method can tell us anything useful about the subject under study. Our responsibility, then, unless we badly misread the Supreme Court’s opinion, is to resolve disputes among respected, well-credentialed scientists about matters squarely within their expertise, in areas where there is no scientific consensus as to what is and what is not ‘good science,’ and occasionally to reject such expert testimony because it was not ‘derived by the scientific method.’” *Daubert v. Merrell Dow Pharmaceuticals, Inc.* (9th Cir. 1995) 43 F.3d 1311, 1316.

The Supreme Court of North Carolina wrote: “One of the most troublesome aspects of the *Daubert* ‘gatekeeping’ approach is that it places trial courts in the onerous and impractical position of passing judgment on the substantive merits of the scientific or technical theories undergirding an expert’s opinion. We have great confidence in the skillfulness of the trial courts of this State. However, we are unwilling to impose upon them an obligation to expend the human resources required to delve into complex scientific and technical issues at the level of understanding necessary to generate with any meaningfulness the conclusions required under *Daubert.*” *Howerton v. Arai Helmet, Ltd.* (2004) 348 N.C. 440, 464-465, 697 S.E.2d 674.
This same sentiment has been echoed in the writings of countless other courts and commentators. See, e.g., *Ruiz-Troche v. Pepsi Cola of P.R. Bottling Co.*, 161 F.3d 77, 81 (1st Cir. 1998) (noting that “choreographing the *Daubert* pavane remains an exceedingly difficult task. Few federal judges are scientists, and none are trained in even a fraction of the many scientific fields in which experts may seek to testify.”); *Zuchowicz v. United States*, 870 F. Supp. 15, 19 (D. Conn. 1994) (“[J]udges may not always have the ‘special competence’ to resolve complex issues which stand ‘at the frontier of current medical and epidemiological inquiry.’” (citations omitted)); *Goeb v. Tharaldson*, 615 N.W.2d 800, 812-13 (Minn. 2000) (observing that “*Daubert* takes from scientists and confers upon judges uneducated in science the authority to determine what is scientific. This approach, which necessitates that trial judges be ‘amateur scientists,’ has also been frequently criticized.” (citations omitted)); 29 Charles A. Wright & Victor J. Gold, *Federal Practice and Procedure* § 6266, at 271 (1997) (“It is unrealistic to think that courts can resolve disputes concerning the scientific validity of issues on the frontiers of modern science where even the experts may disagree. As a result, *Daubert* has been harshly criticized for imposing such a burden on the lower courts.” (footnotes omitted)); George D. Marlow, *From Black Robes to White Lab Coats: The Ethical Implications of a Judge's Sua Sponte, Ex Parte Acquisition of Social and Other Scientific Evidence During the Decision-Making Process*, 72 St. John's L. Rev. 291, 333 (1998) (contending that “few judges possess the academic credentials or the necessary experience and training in scientific disciplines to separate competently high quality, intricate scientific research from research that is flawed”).

Several courts have criticized *Daubert*’s gatekeeping role for judges as violating a plaintiff’s right to a jury trial. See, e.g., *Howerton v. Arai Helmet, Ltd.* (2004) 348 N.C. 440, 697 S.E.2d 674, 692 [“we are concerned that trial courts asserting sweeping pre-trial ‘gatekeeping’ authority under *Daubert* may unnecessarily encroach upon the constitutionally-mandated function of the jury to decide issues of fact and to assess the weight of the evidence.”]; *Brasher v. Sandoz Pharmaceuticals Corp.* (N.D. Ala. 2001) 160 F. Supp. 2d 1291, 1295 (applying *Daubert*, but acknowledging that “[f]or the trial court to overreach in the gatekeeping
function and determine whether the opinion evidence is correct or worthy of credence is to usurp the jury's right to decide the facts of the case”]; Logerquist v. McVey, 196 Ariz. 470, 488, 1 P.3d 113, 131 (2000) [“The Daubert/Joiner/Kumho trilogy of cases . . . puts the judge in the position of passing on the weight or credibility of the expert's testimony, something we believe crosses the line between the legal task of ruling on the foundation and relevance of evidence and the jury's function of whom to believe and why, whose testimony to accept, and on what basis.”]; Bunting v. Jamieson, 984 P.2d 467, 472 (Wyo. 1999) [adopting Daubert, but nonetheless expressing concern that “application of the Daubert approach to exclude evidence has been criticized as a misappropriation of the jury's responsibilities. . . . ‘[I]t is imperative that the jury retain its fact-finding function.’” (citations omitted)).

What About California?

The year after the U.S. Supreme Court decided Daubert, the California Supreme Court rejected Daubert and expressed its continued adherence to the Frye rule, which it had earlier adopted in People v. Kelly (1976) 17 Cal.3d 24. People v. Leahy (1994) 8 Cal.4th 587. The rationale underlying the Frye rule is that the “misleading aura of certainty which often envelops a new scientific process,” Huntingdon v. Crowley (1966) 64 Cal.2d 647, 656, “may in some instances assume a posture of mystic infallibility in the eyes of a jury.” Kelly, 17 Cal.3d at 32. This rationale only applies where experts offer testimony based on novel scientific techniques. “[W]hile courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.” Kelly, 17 Cal.3d at 30.

California courts have held the Frye rule inapplicable to expert medical testimony [People v. McDonald (1984) 37 Cal.3d 351], clinical opinion testimony [People v. Rowland (1992) 4 Cal.4th 238], medical causation opinion testimony [People v. Stoll (1989) 49 Cal.3d

“California distinguishes between expert medical opinion and scientific evidence; the former is not subject to the special admissibility rule of Kelly-Frye. . . . Kelly-Frye applies to cases involving novel devices or processes, not to expert medical testimony. People v. Ward, supra, 71 Cal.App.4th at 373.

“There is good reason why courts draw a distinction between expert medical testimony and evidence derived from a new scientific device or procedure. ‘When a witness gives his personal opinion on the stand -- even if he qualifies as an expert -- the jurors may temper their acceptance of his testimony with a healthy skepticism born of their knowledge that all human beings are fallible. But the opposite may be true when the evidence is produced by a machine: like many laypersons, jurors tend to ascribe an inordinately high degree of certainty to proof derived from an apparently 'scientific' mechanism, instrument, or procedure. Yet the aura of infallibility that often surrounds such evidence may well conceal the fact that it remains experimental and tentative.’” Id.

The court in People v. Bui (2001) 86 Cal.App.4th 1187, affirmed the admission of a toxicologist’s opinion that methamphetamine blood levels correlate with impaired driving skill. The defendant contended the trial court erred in admitting the testimony, arguing it was based on a new scientific technique and was not generally accepted in the scientific community. The Court of Appeal rejected this argument because the toxicologist’s opinion was based on epidemiological studies. The Court noted that “epidemiological studies and reviews of existing literature are common, valid, and accepted tools of scientific research, which have been in use within the scientific community for the past 200 years.” Id. at 1195. The mere fact that the defendant’s expert disagreed with the toxicologist’s conclusions “does not make [his] methodology a new scientific technique.” Id. at 1196. Viewed in context, the appellate court affirmed the trial court’s refusal to weigh the competing opinions on the ground that the court
was a “gatekeeper.”

The California Supreme Court has previously rejected Daubert and has long adhered to the Frye rule, which it has concluded does not apply to expert medical testimony. However, this past November, in a contract dispute involving a future damages claim against the University of Southern California for more than a billion dollars in lost profits of a new business, the California Supreme Court cited Daubert and recognized a “gatekeeping” function of California courts under California Evidence Code §§ 801(b) and 802. *Sargon Enterprises v. USC* (2012) 55 Cal.4th 747 (“[U]nder Evidence Code sections 801, subdivision (b) and 802, the trial court acts as a gatekeeper to exclude expert opinion testimony that is (1) based on matter of a type on which an expert may not reasonably rely, (2) based on reasons unsupported by the material on which the expert relies, or (3) speculative.”). *Sargon, supra,* 55 Cal.4th at 771-772.

While citing Daubert and using the term “gatekeeper,” the California Supreme Court admonished California trial courts that they may not improperly exclude proper expert testimony: “But courts must also be cautious in excluding expert testimony. The trial court's gatekeeping role does not involve choosing between competing expert opinions. The . . . gatekeeper's focus ‘must be solely on principles and methodology, not on the conclusions that they generate.'” *Sargon, supra,* 55 Cal.4th at 772, quoting *Daubert v. Merrell Dow Pharmaceuticals, Inc.* (1993) 509 U.S. at p. 595.

The admonition by the California Supreme Court in *Sargon* that trial courts have only limited authority to exclude expert testimony was similarly expressed by the First Circuit in *Milward*. The California Supreme Court’s admonition that “the trial court's gatekeeping role does not involve choosing between competing expert opinions,” *Sargon, supra,* 55 Cal.4th at 772, is consistent with the *Milward* court’s holding that “where . . . both experts' opinions are supported by evidence and sound scientific reasoning, the question of who is right is a question for the jury.” *Milward, supra,* 639 F.3d at 24. Likewise, the California Supreme Court’s admonition that “the . . . gatekeeper's focus must be solely on principles and methodology, not on the conclusions that they generate,” *Sargon, supra,* 55 Cal.4th at 772, is consistent with
Milward’s holding that “[t]he soundness of the factual underpinnings of the expert's analysis and the correctness of the expert's conclusions based on that analysis are factual matters to be determined by the trier of fact.” Milward, supra, 639 F.3d at 22, quoting Smith v. Ford Motor Co. (7th Cir. 2000) 215 F.3d 713, 718.

Conclusion

Milward provides a reasoned and balanced approach to the admissibility of expert testimony under Daubert. Although the California Supreme Court rejected the application of Daubert in favor of the Frye rule in its 2004 opinion in Leahy, the Court’s recent decision in Sargon does cite Daubert and recognizes a limited gatekeeping role of California trial courts in screening expert testimony. Sargon was a breach of contract case involving an exorbitant and grossly speculative claim for lost future profits of a new business against a state university. It did not involve expert medical testimony or scientific evidence. While the Sargon court did cite Daubert in support of its decision, no California appellate court has considered expert medical or scientific testimony in light of the principles articulated by the California Supreme Court in Sargon. Thus, it is unclear if Sargon will have any applicability to expert medical testimony or expert scientific testimony. But if Sargon is eventually held to apply to expert medical and scientific testimony, California courts would likely apply it much like the Milward court applied Daubert, rather than as Daubert has been erroneously applied in cases by federal judges who assumed the role of amateur scientist and issued draconian decisions, excluding opinion testimony of highly qualified experts and reasoned expert medical and scientific testimony, either because they misunderstood the testimony (as the Milward court found of the federal judge) or because they disliked the expert, the testimony, the nature of the case, or their heavy docket. Only the future will tell.