Mass tort and product liability cases can involve a broad range of sometimes novel liability and damage theories, including increased risk of disease, fear of disease, immunotoxicity, and medical monitoring. For this reason, experts with a wide-range of specialties are called upon in mass tort cases, including in the fields of dispersion modeling, epidemiology, immunology, analytical chemistry, statistics, toxicology, and oncology. These experts are used by both plaintiffs and defendants to prove and disprove various parts of the cases, including causation, which is the key element of most mass tort cases. It is therefore no surprise that the admission of expert evidence has become critical to prosecuting and defending mass tort cases.

Given the importance of expert evidence in mass tort cases, it is essential that mass tort practitioners have a good grasp of the rules governing expert evidence. It is helpful to have an understanding of the historical development of the guiding principles for the admissibility of expert evidence, especially since the modern admissibility rules were largely shaped in the context of mass tort cases. This article thus attempts to trace the key developments in expert evidence over the years. And any discussion on the history of the admissibility of expert evidence must begin with Frye.2

1923: Frye Establishes the General Acceptance Test

In 1923, the D.C. Circuit issued its decision in Frye v. United States3 and established the “general acceptance” standard for the admissibility of novel scientific evidence. Its legacy is remarkable as, 90 years later and despite significant changes in federal jurisprudence, a handful of states, including New York, New Jersey and Pennsylvania, still follow Frye.

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1 The authors wish to thank associate Lisa Sokolowski for her invaluable assistance in preparing this article.

2 This article focuses on the admissibility of expert evidence in the federal courts. Given the great influence the federal approach has had on the majority of the states and the Class Action Fairness Act of 2005’s expansion of federal jurisdiction over class and mass actions, it is paramount that all mass tort practitioners understand how the federal courts deal with expert evidence.

3 293 F. 1013 (D.C. Cir. 1923).
Mr. Frye was a convicted second-degree murderer who appealed his conviction, arguing that the trial court improperly disallowed testimonial expert evidence relating to the results of a systolic blood pressure deception test (a precursor to the polygraph test). The trial court had found that the test results were inadmissible because the deception test had not gained recognition from psychological and physiological authorities. The D.C. Circuit affirmed the trial court’s ruling, finding that deception tests were not sufficiently established and had not gained general acceptance in the relevant fields.

The Frye standard permitted trial courts to exclude any science deemed to be insufficiently established within the pertinent fields. As a result, the standard required deference to the opinions of scientists, so long as the opinions were consistent with conventional scientific wisdom. While the Frye general acceptance test was the law in the federal courts until the Supreme Court decided Daubert v Merrell Dow in 1993, there were several events that paved the way for Daubert.

### 1975: The Adoption of the Federal Rules of Evidence Impacts Frye

In 1965, Supreme Court Chief Justice Earl Warren appointed an advisory committee to draft a codification of the common law rules of evidence. After several drafts and lengthy delays, the Federal Rules of Evidence were enacted into law in 1975. Of particular importance to the admissibility of expert evidence is FRE 702 which, at the time of adoption, was titled “Testimony by Experts” and read: “If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.”

In the time after the FRE were enacted, the use of scientific expert evidence increased and some courts interpreted FRE 702 as encouraging the admission of any evidence that may help the jury. This weakened the Frye general acceptance test. It thus became increasingly

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5 FRE 702 has been amended a few times – most significantly after Daubert and Kumho Tire v. Carmichael, 526 U.S. 137 (1999), were decided – and is now titled “Testimony by Expert Witnesses” and reads: “A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.”


7 Id.
common for judges to accept a broad range of expert scientific testimony without much regard to the inherent validity of the testimony. Some judges, though, refused to allow questionable science into their courtrooms. These judges – like Judge Jack B. Weinstein of the Eastern District of New York – were the pioneers of expert evidence gatekeeping before Daubert made judicial gatekeeping an accepted practice.

1985: Judge Weinstein’s Gatekeeping in the “Agent Orange” Litigation

Nearly a decade before Daubert was decided by the Supreme Court, Judge Weinstein crafted and applied a rigorous test to determine the admissibility of causation evidence in the “Agent Orange” litigation. In that litigation, certain Vietnam veterans opted out of the settlement class that had been created by the defendant chemical companies. With respect to those plaintiffs, the defendants moved for summary judgment.

During a time when concerns were being voiced about the dilution of the Frye general acceptance test, Judge Weinstein reviewed plaintiffs’ experts’ causation opinions and found that they were not admissible under Frye and FRE 702. Without causation evidence, plaintiffs could not meet their burden of proof and Judge Weinstein granted summary judgment in favor of the defendants.

In granting defendants’ motion, Judge Weinstein referenced the “false aura of scientific infallibility” that experts can bring to court, and the corresponding risk of jury confusion. He recognized early on that, if left unbridled, expert testimony can actually undermine the integrity of the fact-finding process. Judge Weinstein was also one of the first judges to make practical use of FRE 104, 702, 703, 403 and Federal Rule of Civil Procedure 56 to resolve difficult scientific admissibility issues relating to causation, relevance, and burden of proof. Ultimately, though, the role of the judge as the gatekeeper in the federal court system was not made clear until the Supreme Court issued its Daubert opinion.

1993: The Supreme Court’s Daubert Decision & The Bendectin Litigation

The landmark Daubert decision arose from yet another mass tort case. Thousands of plaintiffs claimed that Bendectin, an anti-nausea drug intended to treat morning sickness during pregnancy, was responsible for their or their babies’ birth defects. Among these lawsuits was one filed in California state court by Jason Daubert and Eric Schuller (and their parents) who were both born with serious birth defects. Merrell Dow removed the case to federal court and moved for summary judgment with an expert affidavit showing that no published scientific study had demonstrated a link between Bendectin and birth defects. In their opposition, the plaintiffs submitted an expert affidavit that claimed that, based on animal studies, pharmacological studies and reanalysis of other published studies, Bendectin could cause birth defects. The district court excluded plaintiffs’ expert’s testimony regarding Bendectin’s ability to cause birth defects in

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8 Id.

humans, finding that plaintiffs’ expert’s methodologies were not generally accepted within the
general scientific community. The district court thus granted Merrell Dow’s motion for
summary judgment. The Ninth Circuit affirmed the district court’s decision and plaintiffs then
appealed to the Supreme Court.

The Supreme Court in *Daubert* held that the *Frye* “general acceptance” test was
superseded by the enactment of the FRE and that the FRE do not require a “general acceptance”
standard for the admission of scientific evidence in federal courts. The Court described the
general process by which a district judge determines whether scientific evidence should be
admitted pursuant to FRE 702. Although noting that “general acceptance” can still be a factor in
determining admissibility, the Court emphasized that FRE 702 establishes the role of the district
judge as a “gatekeeper” to ensure that proposed expert scientific testimony is both relevant and
reliable. A primary concern of FRE 702 is to help the fact finder. Expert testimony that is
unrelated to the particular issue for which it is offered is not relevant, and therefore not helpful.
The relationship between expert testimony and the facts of the case has been described as one of
“fit.” A valid scientific connection to the case must be made, under FRE 702, to admit expert
testimony.

The Supreme Court stated that it did not presume to set out a definitive checklist or test
and emphasized that the inquiry under Rule 702 is a flexible one. While not announcing a
specific test for determining admissibility of expert testimony, the Court recited four factors
worthy of consideration:

- Whether the theory or technique can be or has been tested;
- Whether the theory or technique has been subjected to peer review and publication;
- The known or potential rate or error, and the existence and maintenance of standards
  controlling the technique’s operation; and
- The “general acceptance” of the theory or technique (*i.e.*, the *Frye* standard).

The Supreme Court went on to affirm the grant of summary judgment in favor of Merrell Dow,
based on its expert’s affidavit concluding that maternal use of Bendectin had not been shown to
be a risk factor for human birth defects. Although plaintiffs’ experts had presented testimony
concluding that Bendectin could, in fact, cause birth defects, these conclusions were based on
animal studies, pharmacological studies, and a reanalysis of previously published studies – none
of which were admissible under FRE 702.

As the Supreme Court observed, quoting Judge Weinstein: “Expert evidence can be both
powerful and quite misleading because of the difficulty in evaluating it. Because of this risk, the
judge in weighing possible prejudice against probative force under Rule 403 of the present rules
exercises more control over experts than over lay witnesses.” 10 And, indeed, after *Daubert*, it
became clear that federal judges must act as the gatekeepers of expert evidence.

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Evidence is Sound; It Should Not Be Amended*, 138 F.R.D. 631, 632 (1991)).
But by the time the *Daubert* case was decided by the Supreme Court, Bendectin had been off the market for ten years. Merrell Dow had voluntarily pulled it off of the market in 1983, citing the litigations and exorbitant insurance premiums related to Bendectin – not safety – as the reasons for discontinuing the drug. Even though the drug was off the market, the litigations persisted, with thousands of plaintiffs claiming that Bendectin was to blame for birth defects. Despite inflamed public fears with respect to Bendectin’s safety – plaintiffs’ experts did, after all, compare Bendectin to Thalidomide\(^{11}\) – plaintiffs never had any credible evidence that Bendectin caused any birth defects. After years of litigation and millions of dollars spent on litigation costs, Merrell Dow – and Bendectin, even though it was no longer available – were vindicated. The litigation, in large part due to the Supreme Court’s 1993 *Daubert* decision, ended favorably for Merrell Dow. The U.S. Food & Drug Administration (“FDA”) published a statement in 1999 in the Federal Register that it “ha[d] determined that the drug product Bendectin . . . was not withdrawn from sale for reasons of safety or effectiveness.”\(^{12}\) The great delay, though, not only cost Merrell Dow millions but also cost doctors and patients an effective treatment. Dr. Michael Greene, the director of maternal-fetal medicine at Massachusetts General Hospital in Boston commented that “Bendectin was the archetypical case of junk science scuttling a perfectly safe product[;] [i]t was a sad episode in American jurisprudence.”\(^{13}\) Indeed, the case had a chilling effect on the development and manufacture of drugs to be used during pregnancy and only two medications have been FDA-approved between 1962 and 2010 for such use.\(^{14}\) Despite the unfortunate circumstances of the Bendectin litigation, it gave rise to one of the most important evidence decisions in Supreme Court history.

**The Supreme Court’s Post- *Daubert* Decisions on Expert Evidence**

Four years after *Daubert*, in 1997, the Supreme Court further strengthened the role of district court judges in matters of expert evidence. In *General Electric v. Joiner*,\(^{15}\) the Supreme Court's Post- *Daubert* Decisions on Expert Evidence

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12 *Determination that Benedectin was not Withdrawn from Sale for Reasons of Safety or Effectiveness*, 64 FED. REG. 152 (Aug. 9, 1999).


Court held that *Daubert* decisions should be reviewed under the same abuse of discretion standard applied to all other evidentiary decisions. The case enhanced the federal judiciary’s gatekeeping authority by holding that it is not an abuse of discretion for a trial court to consider whether the conclusions drawn by the experts, even if proper scientific methodologies are employed, make too great a leap from the data presented. This presented district courts with an invaluable tool in the fight against “junk” scientific testimony. Before *Joiner*, plaintiffs were able to use *Daubert*’s instruction to district courts to focus on proper methodology as a shield to protect some of the more dubious opinions of their experts. Now, a court could conclude that there is simply too great an analytical gap between the data and the opinion offered.

In 1999, the Supreme Court issued its decision in *Kumho Tire v. Carmichael*, which famously held that *Daubert* applies to all expert evidence, not just novel or scientific evidence. The case arose when the right rear tire of a Ford minivan blew out and seven passengers were injured and one was killed. Survivors of the accident brought suit against the tire manufacturer, claiming that the tire was defective. The plaintiffs based their case in significant part on the testimony of an expert in “tire failure analysis” who had concluded that the accident was due to a manufacturing defect rather than wear or poor performance of the tire, which was old, bald in spots, and had imperfect repairs of two punctures. Defendants moved to exclude the proposed testimony of plaintiffs’ expert, and for summary judgment, arguing that the methodology of plaintiffs’ expert failed the reliability requirement of FRE 702.

The district court excluded the expert testimony and granted summary judgment because, although the proposed testimony was more technical than scientific in nature, the reliability-related factors set forth in *Daubert* – testability, whether a theory has been peer-reviewed or published, potential rate of error, and degree of acceptance in the relevant scientific community – nonetheless applied to the reliability of plaintiffs’ expert’s methods. The Eleventh Circuit reversed, reasoning that because the expert’s conclusions were based on personal experience and skill, not scientific principles, the district court had erred in applying the *Daubert* factors.

The Supreme Court reversed the Eleventh Circuit’s decision and held that: (1) the *Daubert* “gatekeeping” obligation applies to all expert evidence, not just scientific expert testimony; (2) a trial judge may consider one or more of the *Daubert* factors in determining the admissibility of expert evidence in any case; (3) a trial judge must have the same kind of latitude in determining how to test an expert’s reliability as it enjoys when deciding whether the expert's testimony is reliable; and (4) the district court did not err in excluding plaintiffs’ proposed expert testimony because it could not be considered reliable.

**Post-*Daubert* Gatekeeping in the Breast Implant Litigation**

Along with the Supreme Court’s clarification of the role of the trial court judge post-*Daubert* came the practical strengthening of the judge’s position as gatekeeper. Specifically, judges have often used FRE 706 to appoint their own experts to assist in complex litigation and,

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in that vein, to act as educators of the court. A paradigmatic example is the vast litigation that stemmed from claims of injuries arising from silicone gel breast implants, which included more than 400,000 cases filed in federal and state courts. A key issue in each of these cases was the extent to which the leakage or rupture of the silicone gel implants could have caused the resulting connective tissue diseases or immune system dysfunction. The complicated scientific issues underlying the causation issue led multiple judges involved in the litigation – including Chief Judge Sam C. Pointer, Jr. of the Northern District of Alabama, Judge Robert E. Jones of the District of Oregon, and Judge Weinstein of the Eastern District of New York – to appoint specific panels of experts tasked to address the connection between the silicone breast implants and the diseases.

Chief Judge Pointer, who oversaw the multidistrict litigation In re Silicone Gel Breast Implants Products Liability Litigation, essentially adopted Judge Weinstein’s approach to the selection of a science panel, and asked the experts to submit reports and give videotaped testimony with the intention of having that testimony become part of the record for the cases. Alternatively, Judge Jones in Hall v. Baxter Healthcare Corp., created an expert panel under the authority of FRE 104, did not ask for deposition testimony, and only used the experts assembled as “technical advisors” to help him resolve the several motions in limine in the case. Still, the judges in both cases utilized their positions as gatekeepers to task experts with the responsibility of assessing, within the confines of the litigation, the conflicting scientific research regarding causation.

2000: Federal Rule of Evidence 702 Is Amended To Reflect Daubert and Kumho Tire

In 2000, FRE 702 was amended in response to Daubert and Kumho Tire. The amendment explicitly “affirms the trial court’s role as gatekeeper and provides some general standards that the trial court must use to assess the reliability and helpfulness of proffered expert testimony.” The Advisory Committee Notes also enumerated a non-exhaustive list of factors that may be relevant in determining whether expert evidence is sufficiently reliable to be heard by the jury:

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17 Although New York’s Civil Practice Law and Rules does not have a provision analogous to FRE 706, a state court justice combined resources with her counterparts in the federal courts in New York in order to address expert evidentiary issues in the silicone breast implant litigation. In that litigation, the New York state and federal courts agreed “to a unique cooperative endeavor whereby a Daubert hearing would be held in [a federal judge’s] court and the parties would use the record of that hearing in future proceedings in state court for rulings on the admissibility of scientific evidence and expert testimony.” In re New York State Silicone Breast Implant Litig., 656 N.Y.S.2d 97, 98 (Sup. Ct. N.Y. Cnty. 1997) (internal citation omitted).


whether experts are proposing to testify about matters growing naturally and directly out of research they have conducted independent of the litigation, or whether they have developed their opinions expressly for purposes of testifying;
• Whether the expert has unjustifiably extrapolated from an accepted premise to an unfounded conclusion;
• Whether the expert has adequately accounted for obvious alternative explanations;
• Whether the expert is being as careful as he would be in his regular professional work outside his paid litigation consulting; and
• Whether the field of expertise claimed by the expert is known to reach reliable results for the type of opinion the expert would give.

(citations omitted). Significantly, the Advisory Committee Notes also make clear that “[i]f the witness is relying solely or primarily on experience, then the witness must explain how that experience leads to the conclusion reached, why that experience is a sufficient basis for the opinion, and how that experience is reliably applied to the facts.”

**Expert Evidence In Today’s Mass Torts Cases**

Of course, expert evidence remains of critical importance in today’s mass tort litigations. A recent *Daubert* decision in an MDL in the Southern District of Florida regarding plaintiffs’ use of denture creams provides a good illustration of the court’s role as the gatekeeper of expert evidence.21 The cases generally assert that plaintiffs’ neurological conditions were caused by their use of zinc-containing denture creams. In one of the cases scheduled for trial, Proctor & Gamble, the manufacturer of the denture cream Fixodent, moved to exclude seven of the plaintiffs’ experts. The experts in question included a toxicologist, an epidemiologist, and an expert on zinc metabolism. Their proposed testimony was that Fixodent was generally capable of causing zinc-induced copper-deficiency myelopathy (the plaintiffs’ neurological condition) and specifically caused the plaintiffs’ myelopathy. Proctor & Gamble argued that the experts’ methodologies were unreliable and thus inadmissible. The court, finding that there is no reliable basis to conclude that either Fixodent or zinc can cause copper-deficiency myelopathy, granted Proctor & Gamble’s motions and excluded plaintiffs’ general and specific causation evidence.

On the other end of the spectrum, a recent Ninth Circuit case illustrates a different approach to judicial gatekeeping duties. In *Barabin v. AstenJohnson*,22 the plaintiff, who was diagnosed with mesothelioma, sued the manufacturers of asbestos-containing dryer felts that were installed on paper machines used in the paper mill where plaintiff worked. The defendants moved to exclude two of plaintiff’s expert witnesses, both doctors. The district court first excluded one doctor, and limited the second doctor’s testimony. During a pre-trial conference, and without holding a *Daubert* hearing as requested by defendants, the court reversed its


22 700 F.3d 428 (9th Cir. 2012).
decision to exclude the first doctor’s testimony because the plaintiff submitted new evidence as to the doctor’s prior experience testifying in state court proceedings. The manufacturer defendants sought a new trial based on, among other things, improper admission of expert testimony, but the district court denied the motions.

On appeal, the Ninth Circuit held that the district court abused its discretion when it failed to conduct a Daubert hearing or otherwise make relevance and reliability determinations regarding the proposed expert testimony. The Ninth Circuit noted that because the district court failed to conduct the requested Daubert hearing, it failed to assess the scientific methodologies, reasoning, and principles the doctor applied. In failing to consider any of the Daubert factors, “the court allowed the parties to submit the unfiltered expert testimony to the jury.”\textsuperscript{23} The Ninth Circuit made clear that: “[o]nce presented with the additional information in [ ] response to the motion in limine, at a minimum the district court was required to assess the scientific reliability of the proffered expert testimony. In failing to do so, the district court neglected to perform its gatekeeping role.”\textsuperscript{24}

As experienced litigators well know and the Ninth Circuit aptly observed in the Barabin case, “the decision to admit or exclude expert testimony is often the difference between winning and losing a case.”\textsuperscript{25}

**What Is Next in Expert Evidence?**

Although certain facets of expert evidence are well-settled, some issues are still disputed. One of those issues – which the Supreme Court is expected to decide within the next few months – is whether Daubert and FRE 702 apply to expert evidence presented at the class certification stage. The issue made it to the Supreme Court in Comcast v. Behrend,\textsuperscript{26} an antitrust case. In the case, plaintiffs are a class of cable television subscribers that allege Comcast engaged in monopolistic activity. In order to be certified as a class, the putative class submitted a damages model prepared by an economic expert witness to show that it suffered damages on a class-wide basis. Comcast objected to the model, arguing that it was inadmissible under FRE 702 and Daubert and thus could not be used as a basis for certification. Plaintiffs argued that because

\textsuperscript{23} Id. at 432.

\textsuperscript{24} Id. (internal citations omitted).

\textsuperscript{25} Id. Indeed, multiple amicus briefs were filed in support of Comcast before the Supreme Court in Comcast v. Behrend, 133 S. Ct. 24 (2012), urging the Court to require admissibility determinations under Daubert at the class certification stage because of the significant settlement pressure on defendants caused by class certification. Judge Posner further noted in the In re Sulfuric Acid Antitrust Litig., Nos. 12-1109, 12-1224 (7th Cir. Dec. 27, 2012), that defendants face “monstrous judgment[s]” and thus “threats of ruin” in the class action context (as opposed to facing plaintiffs one by one) which “force[s] most defendants in class action suits to settle if a class is certified.”

\textsuperscript{26} 133 S. Ct. 24 (2012).
Daubert is intended to protect juries from being swayed by dubious scientific testimony, it should not apply as stringently during the class certification stage, where the judge is the decision maker. The district court sided with plaintiffs and certified the class, finding that it need not make final rulings on admissibility before certification.

In Comcast’s appeal to the Third Circuit, it argued that the Supreme Court’s ruling in Wal-Mart Stores v. Dukes27 required district courts to resolve any questions bearing on class certification prior to certification, including the admissibility of expert evidence. While the Dukes decision did not decide specifically whether a full Daubert analysis of a challenged expert is required prior to certifying a class, the Supreme Court did hold in Dukes that courts must apply a rigorous analysis of all the prerequisites for class certification (plaintiffs must prove compliance with the FRCP 23 criteria by a preponderance of the evidence), even if the rigorous analysis entails some overlap with the merits of the underlying claims. In addition, the Court noted, albeit in dicta, that it “doubted” that Daubert would not apply to expert evidence at the class certification stage.

The Third Circuit, however, affirmed the district court and thus created a conflict among the Circuits on the issue of whether Daubert applies with respect to class certification. The Seventh Circuit had taken the approach espoused by Comcast when it held that when an expert’s report or testimony is “critical to class certification” a district court “must perform a full Daubert analysis before certifying the class [ ].” Am. Honda Motor Co. v. Allen, 600 F.3d 813, 815-16 (7th Cir. 2010). And the Fifth Circuit has recognized that, “[i]n many cases, it makes sense to consider the admissibility” of expert testimony at the Rule 23 certification stage, because “[i]n order to consider Plaintiff’s motion for class certification with the appropriate amount of scrutiny, the Court must first determine whether Plaintiff’s expert testimony supporting class certification is reliable.” Unger v. Amedisys Inc., 401 F.3d 316, 323 n.6 (5th Cir. 2005). The Eighth Circuit, though, appears to have chosen a middle ground when it affirmed a district court’s “ tailored” Daubert analysis – an examination of the expert testimony with the requirements of Rule 23 in mind. In re Zurn Pex Plumbing Prods. Liab. Litig., 644 F.3d 604, 612 (8th Cir. 2011). The Eighth Circuit concluded that a full Daubert analysis would have been “impractical” because the parties had engaged in bifurcated discovery, resulting in a limited evidentiary record at the class certification stage that would have “prevented . . . [a] full and conclusive Daubert inquiry.” Id. at 612-13. The Eighth Circuit noted that it was “not convinced that the [Seventh Circuit’s] approach [in] American Honda would be the most workable in complex litigation or that it would serve case management better” than a more limited analysis. Id. at 612.

Comcast appealed to the Supreme Court and, in the summer of 2012, the Supreme Court announced that it would review the Third Circuit’s decision, specifically “whether a district court may certify a class action without resolving whether the plaintiff class has introduced admissible evidence, including expert testimony, to show that the case is susceptible to awarding damages on a class-wide basis.” Although the underlying action involves antitrust claims, the issue of whether FRE 702 and Daubert apply at the class certification stage applies to all federal class cases.27 131 S. Ct. 2541 (2011).
actions. The decision will thus be of great importance to mass tort and product liability litigators.

In sum, since *Frye*, the law has developed to both strengthen the role of the judge as gatekeeper and to provide judges with the requisite tools for tackling challenging issues of scientific evidence. At the same time, expert evidence has become more sophisticated and more critical to winning mass tort cases. Practitioners in the mass tort field must thus possess an intimate knowledge of the rules and case law governing the admissibility of expert evidence. Understanding the history helps practitioners bear in mind that the landscape is ever-evolving.
REFERENCES