



F25 You Are the Judges: An Interactive Session on Cutting Edge Issues at the Intersection of Law and Science

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Learning Overview: After attending this presentation, attendees will better understand the role of judges as gatekeepers when cutting edge science arrives at the court's doorsteps and be able to apply rules of evidence to scientific issues in actual court cases involving expert witnesses.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing attendees with learning opportunities to be able to apply and understand rules of evidence involving their roles as expert witnesses in the courts through the use of actual court cases.

This presentation will first provide a quick primer on the evolution of admissible scientific expert testimony. This presentation will review how judges make critical admissibility decisions as gatekeepers of scientific evidence in their courtrooms. State jurisdictions can range from *Frye* to *Daubert* jurisdictions. *Frye v. U.S.* is a one-page decision that still exists in several state jurisdictions.¹ Under the *Frye* test, expert opinions based on scientific techniques are admissible only when the techniques are generally accepted as reliable in the relevant scientific community. *Daubert v. Merrell Dow Pharmaceuticals, Inc.* is the leading case regarding this gatekeeper role of admissibility decision making.² The United States Supreme Court in *Daubert* defined the judge's role as a gatekeeper to admit relevant and reliable scientific knowledge by reviewing a non-exclusive list of questions for "Gatekeepers": Has theory or technique been tested? Has it been subjected to peer review and publication? Is there known or potential rate of error in technique? Is it generally accepted in the relevant scientific community (the *Frye* test)? Federal Rule of Evidence 702 permits witnesses qualified by knowledge, skill, experience, training, or education to testify if: (1) 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; (2) the testimony is based on sufficient facts or data; (3) the testimony is the product of reliable principles and methods; and (4) the expert has reliably applied the principles and methods to the facts of the case.

This presentation will also review actual cases with attendees through an interactive PowerPoint® vehicle for attendees to respond to on admissibility issues. This presentation has selected various state and federal cases to review the admissibility considerations as to various cutting edge issues. How do courts determine the admissibility of cutting edge issues, such as cases involving the STRmix™ program? What are the considerations in discovery? Is the program in the exclusive control of the prosecution team? Can the prosecutor be compelled to produce the STRmix™ software program, the program source code, and internal validation studies? Can computer algorithms be compelled to testify? This presentation will review recent cases involving pathology, toxicology, and chemistry. This presentation will review cases involving qualifying experts. What are the considerations that courts find important in qualifying experts? What about the methodology of the expert? Does Forensic Statistical Tool (FST) testing of DNA meet the *Daubert* standard of admissible evidence? In the case of hypergeometric testing, when is the scientific mythology sufficiently reliable to admit? What about authenticating Facebook® postings where the case relies solely on Facebook® postings? Are these postings admissible when an expert has been qualified? What proof is necessary to authenticate social media evidence, such as Facebook® postings and communications? Additional cases will be reviewed as time permits.

Reference(s):

¹. *Frye v. United States.*, 293 F. 1013 (D.C. Cir. 1923)

². *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993)

Courts, Evidence Rules, Cutting Edge Issues