

ADMISSIBILITY OF FORENSIC DNA PROFILING
EVIDENCE: A MOVEMENT AWAY FROM *FRYE v.*
UNITED STATES AND A STEP TOWARD THE
FEDERAL RULES OF EVIDENCE:
UNITED STATES v. JAKOBETZ, 955 F.2d 786
(2d Cir. 1992), *cert. denied*,
113 S. Ct. 104 (1992)

Since the 1970s, courts have witnessed the widespread introduction of numerous scientific evidentiary techniques and breakthroughs.¹ These procedures provide potentially valuable investigative tools, yet courts and commentators dispute the foundational requirements for their admission.² Deoxyribonucleic acid (DNA) fingerprinting³ is a

1. See, e.g., *United States v. Brown*, 557 F.2d 541 (6th Cir. 1977) (denying admission of ion microprobe analysis of hairsample); *State v. Spencer*, 216 N.W.2d 131 (Minn. 1974) (admitting neutron activation analysis for gunpowder particles on hand). See also ANDRE A. MOENSSENS ET AL., *SCIENTIFIC EVIDENCE IN CRIMINAL CASES* (3rd ed. 1986) (discussing scientific evidence as applied in criminal prosecutions).

2. Several law review articles and treatises have examined the debate over the admissibility of novel scientific evidence. See generally MCCORMICK ON EVIDENCE, § 202-211 (John W. Strong ed., 4th ed. 1992) (discussing the admissibility of novel scientific evidence); JACK B. WEINSTEIN & MARGARET A. BERGER, *WEINSTEIN'S EVIDENCE*, ¶ 702[03] (1992) (same); Paul C. Giannelli, *The Admissibility of Novel Scientific Evidence: Frye v. United States, A Half-Century Later*, 80 COLUM. L. REV. 1197 (1980) (examining the *Frye* general acceptance standard); Michael H. Graham, *Evidence and Trial Advocacy Workshop: Relevancy and the Exclusion of Relevant Evidence: Admissibility of Evidence of a Scientific Principle or Technique - Application of the Frye Test*, 19 CRIM. L. BULL. 51 (1983) (applying the *Frye* test to scientific evidence); Edward J. Imwinkelried, *The Debate in the DNA Cases Over the Foundation for the Admission of Scientific Evidence: The Importance of Human Error as a Cause of Forensic Misanalysis*, 69 WASH. U. L.Q. 19 (1991) (reviewing the need for close scrutiny of individual lab protocol on a case-by-case basis); Mark McCormick, *Scientific Evidence: Defining a New Approach to Admissibility*, 67 IOWA L. REV. 879 (1982) (examining the admissibility of novel scientific evidence); *Rules for Admissibility of Scientific Evidence*, 115 F.R.D. 79 (1987) (reporting on proposed rules for admitting novel scientific evidence); William C. Thompson & Simon Ford, *DNA Typing: Acceptance and Weight of the New Genetic Identification Tests*, 75 VA. L. REV. 45 (1989) (discussing DNA fingerprinting and the evidentiary standards applied to the technique); Janet C. Hoefel, Note, *The Dark Side of DNA Profiling: Unreliable Scientific Evidence Meets the*

newly-developed scientific procedure that can identify an individual's DNA pattern⁴ and determine whether that person was the source of blood, hair, tissue, or semen found at a crime scene or on a victim.⁵ Confronted with the results of DNA analysis, courts have established

Criminal Defendant, 42 STAN. L. REV. 465 (1990) (examining the unreliability of DNA typing results in forensic applications).

3. DNA fingerprinting is also referred to as "DNA typing," "DNA profiling," "DNA printing," "DNA identification," and "forensic DNA testing." The forensic application of DNA typing has been hailed as an innovation which could revolutionize law enforcement. Debra C. Moss, *DNA-The New Fingerprints*, A.B.A. J., May 1, 1988, at 66, 66-70 (discussing the use of DNA typing). See also Ranajit Chakraborty & Kenneth K. Kidd, *The Utility of DNA Typing in Forensic Work*, SCI., Dec. 20, 1991, at 1735 (emphasizing the value of DNA typing as an investigative tool). But see Hoeffel, *supra* note 2, at 466-67 (criticizing the reliability of DNA profiling and urging caution in its admissibility).

4. Each human being has a unique DNA pattern. Hoeffel, *supra* note 2, at 470. The forensic DNA techniques identify and "print" the biological specimen. Thompson & Ford, *supra* note 2, at 48. A sample of the defendant's blood is typed and compared to the print obtained from the biological evidence. *Id.* A "match" is declared if the two prints are visually comparable. Hoeffel, *supra* note 2, at 474. If a match is declared, the final step is to assess the statistical probability of the commonness of the DNA profile. *Id.*

For a more detailed discussion of the various techniques used to type DNA, see BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, FORENSIC DNA ANALYSIS: ISSUES (1990) (examining the debates inherent in forensic DNA analysis); NATIONAL RESEARCH COUNCIL, DNA TECHNOLOGY IN FORENSIC SCIENCE (1992) (discussing the techniques utilized in forensic DNA analysis); OFFICE OF TECHNOLOGY ASSESSMENT, GENETIC WITNESS: FORENSIC USES OF DNA TESTS (1990) (examining the forensic applications of DNA typing); Thompson & Ford, *supra* note 2, at 48-52 (discussing the procedures utilized in DNA typing).

5. In addition to its use in the criminal field, scientists also use DNA fingerprinting extensively in paternity testing. See generally Leon N. Sussman, *Paternity Blood Tests*, 188 N.Y.L.J. 2 (1982) (discussing the use of DNA typing in paternity disputes); Ronald J. Richards, Comment, *DNA Fingerprinting and Paternity Testing*, 22 U.C. DAVIS L. REV. 609 (1989) (advocating the use of DNA fingerprinting in paternity cases).

Some state statutes specifically admit DNA evidence to assist in the resolution of paternity cases. See ARK. CODE ANN. § 9-10-108 (Michie 1991) (authorizing the court to order putative father, mother and child to undergo DNA testing and allowing the results to be introduced in evidence); CONN. GEN. STAT. ANN. § 46b-168 (West Supp. 1992) (same); MICH. COMP. LAWS ANN. § 722.716 (West 1993) (same); MONT. CODE ANN. § 40-5-234 (1992) (mandating appointment of expert to conduct any paternity blood test, including DNA, and clarifying the admissibility of the results); N.M. STAT. ANN. § 40-11-5(D) (Michie 1992) (creating a presumption of paternity based on results of DNA tests).

A number of states have also enacted statutes that admit DNA evidence in criminal cases. See LA. REV. STAT. ANN. § 15:441.1 (West 1992) (allowing evidence of DNA results to establish the identity of criminal offenders); MD. CTS. & JUD. PROC. CODE ANN § 10-915 (Michie 1989) (same); MINN. STAT. ANN. § 634.25 (West Supp. 1993) (authorizing admissibility of DNA analysis results in both civil and criminal trials); VA.

diverse standards and litmus tests for the admission of this type of innovative evidence.⁶ In *United States v. Jakobetz*,⁷ the Court of Appeals for the Second Circuit faced the question of whether to admit forensic DNA typing results.⁸ The *Jakobetz* court adopted a "relevancy" test⁹ which admits novel scientific evidence if its probativeness, materiality, and reliability outweigh its tendency to mislead, prejudice, or confuse the jury.¹⁰

In *Jakobetz*, the defendant moved to suppress DNA profiling evidence on the ground that such evidence was unreliable and unfairly prejudicial.¹¹ Applying the analysis set forth in *United States v. Williams*¹² for testing the admissibility of forensic DNA evidence, the district court held that the evidence was sufficiently reliable¹³ to warrant

CODE ANN. § 19.2-270.5 (Michie 1992) (allowing evidence of DNA testing to prove the identity of a person during criminal proceedings).

6. See, e.g., *United States v. Downing*, 753 F.2d 1224 (3d Cir. 1985) (employing a relevancy test); *United States v. Williams*, 583 F.2d 1194 (2d Cir. 1978) (adopting a relevancy test), *cert. denied*, 439 U.S. 1117 (1979); *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923) (establishing the general acceptance test); *People v. Castro*, 545 N.Y.S.2d 985 (N.Y. Sup. Ct. 1989) (employing a modified general acceptance standard).

7. 955 F.2d 786 (2d Cir. 1992), *cert. denied*, 113 S. Ct. 104 (1992).

8. *Id.* at 789.

9. See *infra* notes 46-58 and accompanying text for a detailed discussion of the relevancy standard.

10. *Jakobetz*, 955 F.2d at 796. To assess the reliability of the scientific evidence, the court reaffirmed the use of the following factors:

(1) the potential rate of error; (2) the existence and maintenance of standards; (3) the care and concern with which a scientific technique has been employed, and whether it appears to lend itself to abuse; (4) the existence of an analogous relationship with other types of scientific techniques and results that are routinely admitted into evidence; and (5) the presence of "fail-safe" characteristics.

Id. at 794, 796 (citing *United States v. Williams*, 583 F.2d 1194, 1198-99 (2d Cir. 1978)).

11. *United States v. Jakobetz*, 747 F. Supp. 250, 250 (D. Vt. 1990). The defendant was convicted of kidnapping pursuant to 18 U.S.C. § 1201(a)(1) (1988). *Jakobetz*, 955 F.2d at 789. The Federal Bureau of Investigation compared a blood sample from the defendant with a semen sample from a vaginal swab of the victim and concluded that the two samples constituted a match. *Id.*

12. 583 F.2d 1194 (2d Cir. 1978). See *infra* notes 46-52 and accompanying text for a more detailed discussion of the *Williams* test.

13. *Jakobetz*, 747 F. Supp. at 63. The trial judge looked beyond the five *Williams* factors for assessing reliability and considered a number of other factors before finding the evidence admissible. *Id.* at 254-55. The judge considered: (1) the expert's qualifications and stature; (2) the existence of specialized literature; (3) the novelty of the technique and its relationship to more established areas of scientific analysis; (4) whether experts in the field have generally accepted the technique; (5) the nature and breadth of

use in the courtroom and was not unfairly prejudicial to the defendant.¹⁴ On appeal, the Court of Appeals for the Second Circuit affirmed, and held that the *Williams* test applies to the introduction of DNA profiling evidence, and that the courts may take judicial notice of the theories and techniques involved in DNA profiling.¹⁵ Beyond such judicial notice, the court noted that the threshold test for admissibility requires only preliminary proof of the proffered data's reliability.¹⁶

Innovative scientific procedures may potentially assist juries in resolving factual disputes.¹⁷ Courts hesitate, however, to admit such techniques because the procedures may be unreliable and overwhelm the jury.¹⁸ To assess the reliability of new scientific processes and evaluate their potential for prejudicing the jury, courts have principally employed two alternative evidentiary standards: the *Frye* "general acceptance" standard¹⁹ and the "relevancy" standard.²⁰

the inference adduced; (6) the clarity with which experts may explain the technique; (7) the extent to which a court and jury may verify basic data; (8) the availability of other experts to evaluate the technique; and (9) the probative significance of the evidence. *Id.*

14. *Id.* at 263. The court found that the proponent of novel scientific evidence need not prove the reliability of the evidence beyond a reasonable doubt, but need only make a prima facie showing of reliability. *Id.* at 255.

Rule 403 of the Federal Rules of Evidence dictates what relevant evidence courts may omit on grounds of unfair prejudice: "Although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence." FED. R. EVID. 403. The Advisory Committee's Note to Rule 403 defines unfair prejudice as "an undue tendency to suggest decision on an improper basis, commonly, though not necessarily, an emotional one." FED. R. EVID. 403 advisory committee's note.

The *Jakobetz* court recognized the potential for unfair prejudice and stated that the jury may be overwhelmed by the DNA evidence. *Jakobetz*, 747 F. Supp. at 262. The court ultimately concluded that cross-examination, opposing expert witnesses, and jury limiting instructions counteract the prejudicial hazards of such evidence. *Id.*

15. *Jakobetz*, 955 F.2d at 799.

16. *Id.* at 799-800.

17. *See, e.g.*, *United States v. Stifel*, 433 F.2d 431, 435 (6th Cir. 1970) (noting that neutron activation analysis may have a substantial impact on the jury), *cert. denied*, 401 U.S. 994 (1971).

18. *See, e.g.*, *United States v. Hearst*, 412 F. Supp. 873, 895 (N.D. Cal. 1976) (denying the admission of psycholinguistics testimony due to its unreliability); *People v. Brown*, 709 P.2d 440, 450 (Cal. 1985) (ruling protein gel electrophoresis inadmissible because of its unreliability). *See also supra* note 14 for reasons why relevant evidence may be inadmissible under Federal Rule of Evidence 403.

19. *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923). *See infra* note 21 for a discussion of the general acceptance test.

20. *United States v. Williams*, 583 F.2d 1194 (2d Cir. 1978), *cert. denied*, 439 U.S.

In *Frye v. United States*,²¹ the Circuit Court for the District of Columbia established the first widely-accepted approach for admitting novel scientific evidence.²² The defendant appealed his conviction²³ on the ground that the trial court erroneously excluded his expert witness' testimony regarding the results of a polygraph test.²⁴ The court held that the lie-detector test results were inadmissible and concluded that courts should admit recently-developed scientific procedures only if they have been generally accepted in their relevant scientific community.²⁵ Some courts and commentators have praised *Frye's* "general

1117 (1979). Under the relevancy standard, novel scientific evidence is admissible if its probative value is not substantially outweighed by the dangers of unfair prejudice, confusion of the issues, misleading the jury, and considerations of undue delay, waste of time, or needless presentation of cumulative evidence. *Id.* at 1198. See also FED. R. EVID. 403, *supra* note 14 (pronouncing the rule regulating the inadmissibility of unfairly prejudicial evidence).

Cases utilizing the relevancy standard include *United States v. Baller*, 519 F.2d 463, 466-67 (4th Cir. 1975) (applying relevancy standard to spectrographic analysis), *cert. denied*, 423 U.S. 1019 (1975); *United States v. Sample*, 378 F. Supp. 44, 53-54 (E.D. Pa. 1974) (applying the relevancy approach to voice-print identification); *United States v. Wilson*, 361 F. Supp. 510, 511 (D. Md. 1973) (applying the relevancy standard to a polygraph examination); *United States v. Ridling*, 350 F. Supp. 90, 94-95 (E.D. Mich. 1972) (same).

21. 293 F. 1013 (D.C. Cir. 1923).

22. *Id.* at 1014. The extensively utilized "general acceptance" test articulated in *Frye* provides:

Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and *while 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.*

Id. (emphasis added). For a detailed discussion of *Frye*, see Giannelli, *supra* note 2 at 1204-28.

23. The defendant was convicted of second degree murder. *Frye*, 293 F. at 1013-14.

24. *Id.* The lie-detector test challenged in *Frye* was a systolic blood pressure deception test. *Id.* at 1013.

25. *Id.* at 1014. See *supra* note 21 for the court's exact language.

Courts proceeded to adopt the *Frye* test with little discussion. Gianelli, *supra* note 2, at 1206. See, e.g., *United States v. Brown*, 557 F.2d 541 (6th Cir. 1977) (holding ion microprobe analysis of hair sample inadmissible under *Frye* test); *United States v. Addison*, 498 F.2d 741 (D.C. Cir. 1974) (holding voiceprints inadmissible under *Frye*); *People v. Slone*, 143 Cal. Rptr. 61 (Cal. Ct. App. 1978) (holding bite-mark-identification test satisfied *Frye*); *Boeche v. State*, 37 N.W.2d 593 (Neb. 1949) (holding lie detector test inadmissible under *Frye*).

acceptance" standard for its ability to assess novel scientific evidence,²⁶ while others have criticized the test for its vagueness,²⁷ its tendency to exclude potentially useful evidence,²⁸ its inability to guarantee reliability,²⁹ and its too generalized focus.³⁰

Recognizing that the *Frye* standard does not require a case-by-case

26. See *United States v. Brown*, 557 F.2d at 556 (holding *Frye* safeguards against possible prejudicial effects of testimony based upon scientific theories and provides a high standard which protects the interests of defendants who frequently are unable to effectively rebut such evidence); *United States v. Addison*, 498 F.2d at 743-44 (lauding *Frye* for providing a method by which courts may assess the reliability of novel scientific evidence).

27. See Giannelli, *supra* note 2, at 1211 (noting that *Frye* does not specify whether the scientific technique and/or the underlying scientific principle must be generally accepted).

Frye's general acceptance standard has come under heavy analytical fire, especially for its vague mandates and conservative stance toward the admissibility of new scientific procedures. See, e.g., 1 DAVID W. LOUISELL & CHRISTOPHER B. MUELLER, *FEDERAL EVIDENCE*, § 105 (1977) (stating that *Frye* does not define which scientific field(s) must find the procedure acceptable, or who is to define the appropriate field(s) into which the principle falls). But see Philip H. Dixon, *Recent Developments*, 64 CORNELL L. REV. 875, 881 (1979) (arguing that *Frye's* vagueness is beneficial and gives the court considerable leeway in deciding whether the new scientific technique has achieved general acceptance in its appropriate scientific field). Some courts have therefore gone further than *Frye* and have defined what constitutes "general acceptance." See, e.g., *United States v. Williams*, 443 F. Supp. 269, 273 (S.D.N.Y. 1977) (defining *Frye's* "general acceptance" as acceptance by a substantial section of the scientific community); *United States v. Zeiger*, 350 F. Supp. 685, 688 (D.D.C. 1972) (holding that *Frye's* "general acceptance" has been equated to "scientific nose counting" and is defined as widespread, prevalent acceptance), *rev'd on other grounds*, 475 F.2d 1280 (D.C. Cir. 1972).

28. See CHARLES T. MCCORMICK, *HANDBOOK OF THE LAW OF EVIDENCE*, 363-64 (1954) (asserting that by requiring a sufficient chronicle history of scientific evidence before courts deem a technique generally accepted, *Frye* causes delays in the admissibility of reliable evidence); Giannelli, *supra* note 2, at 1223 (noting that under *Frye*, potentially helpful evidence may be excluded until general scientific consensus develops).

29. See Frederic I. Lederer, *Proposals for a Model Rule on Admissibility of Scientific Evidence: Resolving the Frye Dilemma — A Reliability Approach*, 115 F.R.D. 84, 86 (1987) (stating that general acceptance does not guarantee reliability, but only admits that evidence that is in accord with the "scientific wisdom of the moment"). But see Thompson & Ford, *supra* note 2, at 53 (noting that general acceptance indicates reliability).

30. See Thompson & Ford, *supra* note 2, at 58 (arguing that focusing narrowly on acceptance of a specific implementation of DNA fingerprinting would be advantageous).

Critics of the *Frye* standard further maintain that by focusing attention on the general acceptance issue, the test obscures critical problems in the use of a specific technique. Giannelli, *supra* note 2, at 1226. See also Imwinkelried, *supra* note 2, at 23 (noting that by focusing on whether a scientific method is generally accepted, courts neglect the important issue of whether the "analyst complied with proper scientific protocol" in using the method).

examination of the particular procedures performed, the New York Supreme Court in *People v. Castro*³¹ expanded *Frye*.³² In *Castro*,³³ the defendant stained his wristwatch with blood.³⁴ The police utilized forensic DNA analysis to type the blood,³⁵ and the court ordered a pre-trial hearing to determine the admissibility of the test results.³⁶ The *Castro* court found that the scientific community generally accepted the theory underlying DNA identification and forensic DNA techniques and that these procedures were capable of producing reliable results.³⁷ Nevertheless, the court deemed certain DNA results inadmissible because the testing laboratory failed to use the accepted protocol for obtaining reliable results.³⁸ The court reasoned that by focusing attention on the general acceptance issue, the *Frye* standard overlooked significant problems in the use of a particular technique.³⁹ The court modified the general acceptance test by requiring that before the evidence is admitted, a court must first determine that the specific testing laboratory adhered to accepted scientific protocol.⁴⁰

The Eighth Circuit followed the *Castro* decision and applied the

31. 545 N.Y.S.2d 985 (N.Y. Sup. Ct. 1989).

32. *Id.* at 987-88.

33. The defendant was charged with two counts of second degree murder. *Id.* at 985.

34. *Id.* The alleged source of the blood was the victim. *Id.*

35. *Id.* at 985-86.

36. *Castro*, 545 N.Y.S.2d at 986.

37. *Id.* at 999.

38. *Id.*

39. *Id.* at 987. The court further held that because the DNA typing technique is so complex, satisfying the *Frye* test is insufficient to present such evidence to a jury without a preliminary hearing regarding the particular testing procedures performed in each case. *Id.* See also Imwinkelried, *supra* note 2, at 24-33 (emphasizing that the court must focus on the processes performed in the immediate case); Thompson & Ford, *supra* note 2, at 58 (advocating that courts admit DNA evidence only after determining that correct procedures were implemented in the particular case).

40. *Castro*, 545 N.Y.S.2d at 987. The *Castro* court adopted a three-pronged test to determine the admissibility of DNA evidence:

(1) Is there a theory, which is generally accepted in the scientific community, which supports the conclusion that DNA forensic testing can produce reliable results?

(2) Are there techniques or experiments that currently exist that are capable of producing reliable results in DNA identification and which are generally accepted in the scientific community?

(3) Did the testing laboratory perform the accepted scientific techniques in analyzing the forensic samples in this particular case?

Id.

modified general acceptance standard in *United States v. Two Bulls*.⁴¹ In *Two Bulls*, the defendant moved to suppress forensic DNA typing results.⁴² The court adopted the *Castro* standard⁴³ and stated that both *Frye* and Federal Rule of Evidence 702⁴⁴ require that the proponent of the evidence, before offering DNA profiling results, must demonstrate that investigators adhered to proper DNA typing procedures.⁴⁵

While some courts follow the "general acceptance" standard and its progeny, other courts adopt a "relevancy" standard, which is based upon the Federal Rules of Evidence.⁴⁶ The Second Circuit employed a

41. 918 F.2d 56 (8th Cir. 1990).

42. *Id.* at 57. The defendant was charged with aggravated sexual abuse and sexual abuse of a minor. *Id.* The DNA profiling technique was performed on a semen stain from the victim's underwear and was compared to a sample of the defendant's blood. *Id.*

43. *Id.* at 60-61. The court rejected the government's argument that Federal Rule of Evidence 702's liberal rule of admissibility supersedes *Frye*'s general acceptance standard. *Id.* at 59.

44. *See infra* note 56 for the language of Federal Rule of Evidence 702.

45. *Id.* at 60. By requiring the proponent to lay a foundation prior to the admission of DNA profiling results, the court believed that any prejudice to the defendant would be avoided. *Id.*

46. *See, e.g.,* *United States v. Ferri*, 778 F.2d 985, 988-90 (3d Cir. 1985) (finding that expert's footprint identification testimony did not prove so prejudicial as to outweigh its reliability); *United States v. Sebetich*, 776 F.2d 412, 418-20 (3d Cir. 1985) (remanding case with directions to hold a hearing to determine the reliability and possibility of confusing the jury with the proffered method of eyewitness identification); *United States v. Downing*, 753 F.2d 1224, 1237-41 (3d Cir. 1985) (adopting a standard that focuses on the reliability of the evidence and then weighs any danger of confusing or misleading the jury with the testimony of eyewitness identifications); *United States v. Williams*, 583 F.2d 1194, 1198-2000 (2d Cir. 1978) (finding evidence of spectrographic voice analysis admissible due to its reliability and unlikelihood to mislead), *cert. denied*, 439 U.S. 1117 (1979).

The Advisory Committee Notes to the Federal Rules of Evidence do not mention *Frye v. United States* when discussing the admission of novel scientific evidence. *See* FED. R. EVID. 401 advisory committee's note; FED. R. EVID. 402 advisory committee's note; FED. R. EVID. 403 advisory committee's note; FED. R. EVID. 701 advisory committee's note; FED. R. EVID. 702 advisory committee's note; FED. R. EVID. 703 advisory committee's note.

Courts and commentators have interpreted the absence of a reference to *Frye* in the Federal Rules of Evidence in varying ways. *See, e.g.,* *United States v. Smith*, 869 F.2d 348, 352-54 (7th Cir. 1989) (stating that the Federal Rules of Evidence encompass *Frye* by making general acceptance a factor in determining probative force); *See also* CHARLES A. WRIGHT & KENNETH W. GRAHAM, JR., 22 FEDERAL PRACTICE & PROCEDURE § 5168 (1978) (arguing that Federal Rule of Evidence 401 neither excludes nor endorses the general acceptance standard); *United States v. Downing*, 753 F.2d 1224,

relevancy standard in *United States v. Williams*.⁴⁷ In *Williams*, agents taped the defendant arranging drug transactions over the telephone and compared the recordings to taped voice exemplars the defendant gave after his arrest.⁴⁸ Investigators utilized a scientific technique known as spectrographic voice analysis to identify the defendant's voice on the tape of the drug transactions.⁴⁹ The court deemed the scientific evidence admissible because its probativeness, materiality, and reliability was not outweighed by its tendency to mislead, prejudice, or confuse the jury.⁵⁰ Furthermore, the court held that, because the reliability determination cannot rest on a process of "counting scientific noses," a number of specific factors may affect a court's decision regarding reliability.⁵¹ All factors considered, the proffered spectrographic evidence in *Williams* passed the relevancy standard.⁵²

More recently, the Third Circuit Court of Appeals adopted a relevancy standard in *United States v. Downing*.⁵³ In *Downing*, the defendant sought to introduce expert testimony concerning the reliability of

1237 (3d Cir. 1985) (holding the Federal Rules of Evidence suggests a more flexible standard for admitting scientific evidence); *State v. Williams*, 388 A.2d 500, 503-04 (Me. 1978) (applying a state evidence rule identical to Federal Rule of Evidence 702 and holding that the rule abrogated the general acceptance standard).

47. 583 F.2d 1194 (2d Cir. 1978), *cert. denied*, 439 U.S. 1117 (1979).

48. *Id.* at 1195-96.

49. *Id.* at 1196.

50. *Id.* at 1200.

51. *Id.* at 1198-99. The court outlined a number of factors to be considered in determining the reliability of a scientific procedure: (1) the potential rate of error; (2) the existence and maintenance of standards; (3) the care and concern with which a scientific technique has been employed, and whether it appears to lend itself to abuse; (4) the existence of an analogous relationship with other types of scientific techniques and whether their results are routinely admitted into evidence; and (5) the presence of "fail-safe" characteristics. *Id.* The court further held that the proffered evidence need not be infallible, just reliable enough to warrant use in the courtroom. *Id.* at 1198. The *Williams* court implicitly rejected *Frye's* general acceptance standard by refusing the scientific nose counting process as a means of assessing reliability. *But see* Dixon, *supra* note 27, at 880-85 (criticizing the *Williams* relevancy test and defending *Frye's* standard as an effective test for evaluating reliability of new scientific procedures).

52. *Williams*, 583 F.2d at 1201.

53. 753 F.2d 1224 (3d Cir. 1985). A number of courts have adopted the *Downing* relevancy standard. *See, e.g.*, *United States v. Ferri*, 778 F.2d 985 (3d Cir. 1985) (accepting *Downing* test and admitting physical anthropologist's testimony concerning foot imprints in the defendant's shoes), *cert. denied*, 476 U.S. 1172 (1985); *Andrews v. State*, 533 So.2d 841 (Fla. Dist. Ct. App. 1988) (employing the *Downing* relevancy test and admitting forensic DNA testimony).

eyewitness identifications.⁵⁴ The *Downing* court held that the Federal Rules of Evidence mandate a relevancy approach akin to Rule 403's balancing test.⁵⁵ Furthermore, the court held that Federal Rule of Evidence 702⁵⁶ requires a court determining the admissibility of novel scientific testimony to focus on (1) the soundness and reliability of the technique, (2) whether admitting the evidence would overwhelm, confuse, or mislead the jury, and (3) the proffered connection between the scientific results to be presented, and the disputed factual issues in the case.⁵⁷ Utilizing this test, the court remanded the case to the district court for an evidentiary hearing concerning the admissibility of the defendant's expert testimony.⁵⁸

*United States v. Jakobetz*⁵⁹ presented the Second Circuit with an opportunity to determine which evidentiary standard to apply to proffered forensic DNA profiling results.⁶⁰ The *Jakobetz* court implicitly rejected the general acceptance standard and concluded that the relevancy approach established in *Williams* should be applied to the complex technique of forensic DNA profiling.⁶¹ Under the court's

54. *Downing*, 753 F.2d at 1226. The defendant offered expert witness testimony to rebut the eyewitness testimony identifying him as the perpetrator. *Id.* The eyewitness testimony was the basis for the defendant's conviction. *Id.*

55. *Id.* The standard the *Downing* court adopted is designated a "relevancy" approach because the test explicitly utilizes both Federal Rule of Evidence 401, which defines relevant evidence as evidence "having any tendency to make the existence of any [material] fact . . . more probable or less probable than it would be without the evidence," FED. R. EVID. 401, and Federal Rule of Evidence 403, which excludes relevant evidence that may overwhelm the jury. FED. R. EVID. 403.

56. Federal Rule of Evidence 702 states: "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." FED. R. EVID. 702.

57. *Downing*, 753 F.2d at 1237. The court held that under Rule 702, an expert's testimony may be admitted if it will be helpful to the jury in understanding evidence that is difficult to comprehend. *Id.* at 1229 (citing STEPHEN A. SALTZBURG & KENNETH REDDEN, FEDERAL RULES OF EVIDENCE MANUAL 451 (3d ed. 1982)). The court further held that Rule 702 adopts a liberal stance and favors admissibility by investing trial courts with broad discretion to admit expert testimony. 753 F.2d at 1229.

58. *Id.* at 1244.

59. 955 F.2d 786 (2d Cir. 1992), *cert. denied*, 113 S. Ct. 104 (1992).

60. *Id.* at 789.

61. *Id.* at 796. The court held that the *Williams* approach embodies the liberal admission standard of Federal Rule of Evidence 702. *Id.* See *supra* note 56 and accompanying text for the language of Rule 702.

analysis, the data obtained from the DNA tests is admissible if the probativeness, materiality, and reliability of such evidence outweigh any tendency to mislead, prejudice, or confuse the jury.⁶²

The court determined that any forensic DNA evidence⁶³ should be admitted absent specific reasons for its exclusion.⁶⁴ The court further held that because the general theories and techniques utilized in forensic DNA fingerprinting are generally accepted, a court could take judicial notice of such information.⁶⁵ The court concluded that, once a court takes judicial notice, a court should admit DNA identification results after there has been a preliminary showing of the reliability of the particular laboratory procedures performed.⁶⁶ The court emphasized that adherence to laboratory protocol should go to the weight rather than the admissibility of the evidence.⁶⁷

The Second Circuit in *Jakobetz* properly declined to adopt *Frye's* general acceptance test and correctly advocated a relevancy standard. The Federal Rules of Evidence liberally admit any evidence that is helpful to the trier of fact, relevant to a dispositive issue before the court, reliable, and not unfairly prejudicial.⁶⁸ In contrast, the general

62. *Jakobetz*, 955 F.2d at 794. The court held that because the probativeness and materiality of most scientific testimony presented to the jury is not questioned, the relevancy standard primarily entails balancing the reliability of the evidence against its potential negative impact on the jury. *Id.*

63. The court held that any relevant expert testimony, not just that pertaining to forensic DNA analysis, should be admitted if there is no basis for exclusion. *Id.* at 797.

64. *Id.* at 796. The court rejected the defendant's argument that the jury was so overwhelmed by the highly technical aspects of the DNA typing technique that the jurors lost their ability to critically analyze the DNA evidence. *Id.* The court believed that a jury would not be so swayed as to ignore evidence demonstrating that the lab failed to adhere to accepted protocol. *Id.* at 797.

65. *Id.* at 799 (citing CHARLES T. MCCORMICK, MCCORMICK ON EVIDENCE § 203 (3d ed. 1984)). The court's choice of *Frye's* "general acceptance" phraseology to denote reliability is suspect because the court specifically stated that *Frye's* general acceptance standard was abandoned with the adoption of the relevancy test in *Williams*.

66. 955 F.2d at 799-800. The court rejected the defendant's argument that the government should have to prove the evidence's reliability beyond a reasonable doubt. *Id.* at 796. Instead, the court held that after courts take judicial notice of the reliability of the theories and techniques utilized in forensic DNA identification tests, reliability of the specific techniques used in the case in controversy need only be preliminarily shown. *Id.* at 799-800.

67. *Id.* at 800. The court's position is in direct conflict with *People v. Castro* and *United States v. Two Bulls*. See *supra* notes 31-45 and accompanying text for discussion of *Castro* and *Two Bulls*.

68. See *supra* notes 46-57 and accompanying text for a discussion of the Federal Rules of Evidence standards for admitting evidence.

acceptance standard and its overly conservative approach to admitting evidence has the potential to exclude helpful, relevant, and reliable evidence.⁶⁹ Rather than adopt the *Frye* standard and eliminate the jury's role in assessing the weight of the evidence, the holding of *Jakobetz* is consistent with the objectives of the Federal Rules of Evidence by admitting evidence that could prove helpful to the jury so long as any tendency to mislead or confuse the jury does not outweigh the probative value of such evidence.⁷⁰

Courts across the country admit forensic DNA profiling evidence.⁷¹ By examining specific factors, the relevancy standard adequately assesses the reliability of novel scientific techniques such as DNA fingerprinting.⁷² The *Jakobetz* decision presents an exhaustive analysis in support of the relevancy standard. In order to avoid the exclusion of evidence involving useful scientific procedures that could potentially solve crimes, more courts should adopt *Jakobetz's* reasoning and apply the relevancy standard. Unfortunately, however, the debate over the merits of the general acceptance and relevancy standards will persist as long as the Advisory Committee to the Federal Rules of Evidence does not explicitly address the evidentiary issues the controversy presents.⁷³ If more courts move away from the restrictive *Frye* standard, and to the relevancy standard in *Jakobetz*, there will eventually be a uniform approach to the admission of novel scientific evidence.

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69. See *supra* notes 27-30 and accompanying text addressing the problems of *Frye's* evidentiary standard.

70. See *supra* notes 46-58 and accompanying text for discussion of other cases that adopt the relevancy standard.

71. See Chakraborty & Kidd, *supra* note 3, at 1735.

72. See *supra* note 51 and accompanying text for the specific elements used in the relevancy test to assess the reliability of new scientific procedures.

73. See *supra* note 46 and accompanying text for discussion of the effect the Federal Rules of Evidence have on *Frye's* general admissibility standard.

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