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THE SUPREME COURT OF NEW HAMPSHIRE

Merrimack

No. 2001-427

THE STATE OF NEW HAMPSHIRE

v.

JOSEPH WHITTEY

Argued: February 13, 2003

Opinion Issued: May 2, 2003

Stephen J. Judge, acting attorney general (Michael A. Delaney, senior assistant attorney general, on the brief and orally), for the State.

David M. Rothstein, deputy chief appellate defender, of Concord, by brief and orally, for the defendant.

DALIANIS, J. The defendant, Joseph Whitley, was convicted following a jury trial of first-degree murder in the course of rape. See RSA 630:1-a (1974) (amended 1986 & 1990). On appeal, he argues that the Superior Court (McGuire, J.) erred by: 1) failing to recuse herself from the case; 2) denying the defendant's motion to dismiss; and 3) finding that the results of polymerase chain reaction based short tandem repeat DNA testing were admissible scientific evidence. We affirm.

The relevant facts are as follows. On September 7, 1981, Yvonne Fine was found dead in her home. Following an autopsy, the examiner concluded that Fine's death was caused by strangulation, and that she had bruises on her body that could have been caused by sexual assault and penetration. Shortly thereafter, the defendant was interviewed by the Concord Police Department and denied having murdered Fine.

In 1993, a serologist confirmed that there was still a usable semen sample in the victim's pajama pants and stored them in a freezer. In 1999, the State sent the pajama pants, a slipper, and the defendant's underwear, as well as fingernail scrapings, to Cellmark Diagnostics (Cellmark) for DNA analysis. Cellmark used a form of DNA testing known as polymerase chain reaction (PCR) based short tandem repeat (STR) DNA profiling and concluded that DNA in the semen sample on the pajama pants matched the defendant's DNA profile. The examiner also concluded that the DNA in a semen stain on the slipper matched the defendant's DNA profile.

Prior to trial, the defendant moved to disqualify the trial judge from the case because she was formerly employed as a prosecutor with the attorney general's office during the investigation of Fine's murder. The trial judge denied the motion. In addition, the defendant unsuccessfully moved to dismiss the indictment charging him with committing murder in the course of rape on the ground that the legislature repealed RSA chapter 632, which defined rape, in 1975. Consequently, he asserted he could not be indicted for the crime of first-degree murder while committing rape because rape did not exist at the time of Fine's murder in 1981.

Finally, the defendant moved to exclude the use of DNA evidence at trial because the PCR-based STR analysis was not admissible under the standard set forth in Frye v. United States, 293 F. 1013 (D.C. Cir. 1923). Following a four-day evidentiary hearing at which the trial court heard detailed expert testimony and received exhibits, the court concluded that PCR-based STR DNA testing was scientifically reliable and, therefore, admissible for purposes of the Frye standard. Following trial, the jury convicted the defendant of first-degree murder in the course of rape. This appeal followed.

I. Motion to Recuse

The defendant first argues that the trial judge erred by failing to recuse herself from the case. He argues that the judge's former employment with the attorney general's office from 1985-1989, which coincided with the investigation of this case, but preceded the defendant's arrest by over ten years, calls into question her impartiality. While acknowledging that the judge did not have any direct involvement in this case, the defendant contends that the trial judge's involvement with the attorney general's office created an appearance of impropriety.

"The Code of Judicial Conduct requires disqualification of a judge in a proceeding in which the judge's impartiality might reasonably be questioned and to avoid even the appearance of impropriety." State v. Bader, 148 N.H. 265, 268 (2002), petition for cert. filed, 71 U.S.L.W. 3624 (U.S. January 15, 2003) (No. 02-1392); see Sup. Ct. R. 38, Canon 3E(1) (formerly Canon 3C(1)).

Whether an appearance of impropriety exists is determined under an objective standard, *i.e.*, would a reasonable person, not the judge herself, question the impartiality of the court. The test for the appearance of partiality is an objective one, that is, whether an objective, disinterested observer, fully informed of the facts, would entertain significant doubt that justice would be done in the case.

Blevens v. Town of Bow, 146 N.H. 67, 69 (2001) (quotation omitted). Pursuant to Canon 3E(1)(b) of the Code of Judicial Conduct, a judge's impartiality may reasonably be questioned in an instance where she served as lawyer in the matter in controversy, or a lawyer with whom she previously practiced law served during such association as a lawyer concerning the matter. Sup. Ct. R. 38, Canon 3E(1)(b). The commentary accompanying Canon 3E(1)(b) provides that "[a] lawyer in a government agency does not ordinarily have an association with other lawyers employed by that agency within the meaning of Section 3E(1)(b); a judge formerly employed by a government agency, however, should disqualify himself or herself in a proceeding if the judge's impartiality might reasonably be questioned because of such association."

The trial judge requested that the State review all of its files relating to the Fine murder to determine whether she had any contact with the investigation. There is no question in this case that the trial judge did not serve as a lawyer in the matter in question as described under Canon 3E(1)(b). The only evidence that established any involvement on the part of the trial judge was a memorandum dated March 13, 1986, which stated that the judge received a telephone call from a defense attorney who requested that law enforcement not communicate with his client, a potential witness in the defendant's case, without his approval. Such innocuous and isolated contact does not form the basis upon which a reasonable person would question the impartiality of the judge in this instance. As the trial judge explained in her order, her action amounted to nothing more than a perfunctory act in her former capacity as a prosecutor and did not amount to

participation in the preparation and investigation of the case sufficient to require disqualification. Cf. Gamez v. State, 665 S.W.2d 124, 127-28 (Tex. Ct. App. 1983) (trial judge was not disqualified from hearing case because of perfunctory act, as former assistant district attorney, of placing signature stamp on papers filed at defendant's arraignment on pending charges).

The only other reason asserted for seeking disqualification of the trial judge is that she was previously employed with the attorney general's office. The majority rule, however, is that "judges are not disqualified solely on the basis that they were formerly employed by the prosecutor's office." People v. Julien, 47 P.3d 1194, 1197-98 (Colo. 2002). In Julien, the Colorado Supreme Court rejected the defendant's claim that a trial judge was disqualified because he formerly worked for the district attorney's office that prosecuted the case. See id. at 1200. The court explained:

Where the judge did not actually participate in the investigation, preparation, or presentation of the case against the person who later appears before him as a defendant, the mere fact that he happened to be employed by the office that did prosecute the defendant has generally been held not to provide a legally sufficient ground for judicial disqualification.

Id. at 1198 (quotation and brackets omitted). In construing Canon 3(C)(1) of the Colorado Code of Judicial Conduct, which is substantially similar to New Hampshire's Canon 3E(1), the court noted that a judge's impartiality cannot be reasonably questioned if the only basis for seeking disqualification is the judge's former employment with the prosecutor's office. Id.

The trial judge did not begin working for the attorney general's office until 1985, approximately four years after Fine was murdered, and left that employment more than a decade before the defendant was indicted and prosecuted. There is nothing in the record to indicate that she had any direct involvement in the defendant's case by participating in the investigation or preparation of the case, or that she acquired any personal knowledge about the evidence in the case. Indeed, the judge stated in her order that she had no recollection of the investigation in this case. Moreover, the trial judge was not a supervising attorney at the attorney general's office and, therefore, was not responsible for the work of the prosecutors who were investigating the case. Cf. id. at 1198 (trial judge must disqualify himself or herself if judge had supervisory role over attorneys prosecuting the case).

Thus, we hold that the trial judge was not required to recuse herself from this case and uphold the court's decision.

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II. Motion to Dismiss

The defendant next argues that the trial court erred by failing to dismiss the indictment charging him with first-degree murder in the course of rape. The indictment in this case charged, in part, that the defendant "knowingly caused the death of Yvonne Fine, age 81, before, after, or while attempting to commit rape." The defendant contends that this charge should have been dismissed because there was no statutory definition for rape in 1981.

As in all cases involving statutory interpretation, the starting point is the language of the statute. State v. Harnum, 142 N.H. 195, 197 (1997). We construe each statute as a whole, and if the statute's language is clear and unambiguous, we do not look beyond the language of the statute to discern legislative intent. Id. If a statute is ambiguous, however, we consider legislative history to aid our analysis. See Appeal of Manchester Transit Auth., 146 N.H. 454, 458 (2001). "Our goal is to apply statutes in light of the legislature's intent in enacting them, and in light of the policy sought to be advanced by the entire statutory scheme." Id. (quotation and brackets omitted).

In 1981, RSA 630:1-a, I(b)(1) (1974) provided that a person was guilty of first-degree murder if the person knowingly causes the death of "[a]nother before, after, while engaged in the commission of, or while attempting to commit rape as defined in RSA 632:1 or deviate sexual relations as defined in RSA 632:2, I." RSA chapter 632 was repealed by the

legislature in 1975 and replaced with RSA chapter 632-A, entitled "Sexual Assault and Related Offenses." It was not until 1986 that the legislature replaced in the first-degree murder statute the phrase "rape as defined in RSA 632:1" with "aggravated felonious sexual assault as defined in RSA 632-A:2" and "felonious sexual assault as defined in RSA 632-A:3." Laws 1986, 132:3; RSA 630:1-a, I(b)(1) (Supp. 1986).

Given the repeal of the former rape statute and the legislature's continued reference to the word "rape" in RSA 630:1-a, I(b)(1), we agree with the trial court that the statutory language at issue is ambiguous. Thus, it is appropriate to consider legislative history to discern the intent behind the statutory language. Appeal of Manchester Transit Auth., 146 N.H. at 458. After reviewing the applicable legislative history, the trial court concluded that the legislature's failure to amend the first-degree murder statute when it repealed the rape statute was an oversight and did not warrant dismissal of the indictment. We agree.

The purpose of promulgating RSA chapter 632-A was to "redefine[] and re-work[]" parts of the Criminal Code dealing with rape and deviant sexual behavior. N.H.S. Jour. 480 (1975). Specifically, the law "change[d] the emphasis and the inquiry from the sexual nature of the crime of rape to the violence of the crime." Id. Contrary to the defendant's argument, rape and aggravated felonious sexual assault are not dissimilar offenses. We have stated that "[r]ape [is] the common law counterpart to aggravated felonious sexual assault." State v. Ayer, 136 N.H. 191, 194 (1992). Indeed, subsequent legislative treatment of aggravated felonious sexual assault is instructive in understanding the legislative interpretation of rape. In 1990, the legislature again amended RSA 630:1-a, I(b)(1), deleting "aggravated felonious sexual assault as defined in RSA 632-A:2," and amending the capital murder statute to include aggravated felonious sexual assault. See RSA 630:1, I(e) (1996). In explaining this change, one senator stated that the inclusion of aggravated felonious sexual assault added a "rape murder" crime to the capital murder statute. N.H.S. Jour. 888 (1990) (emphasis added).

There is nothing apparent in the legislative history to establish that by repealing RSA chapter 632, the legislature intended to eliminate the rape element of the first-degree murder statute. In fact, as the trial court correctly stated, the conduct prohibited under the former rape statute is also specifically prohibited under the aggravated felonious sexual assault statute. Compare RSA 632:1 (1974) with RSA 632-A:2 (1996). Accordingly, we concur with the trial court that the legislature's failure to remove the word "rape" from RSA 630:1-a, I(b)(1) when it repealed RSA chapter 632 was an oversight and did not nullify that provision of the first-degree murder statute. To interpret the statute otherwise would elevate form over substance. We therefore uphold the trial court's denial of the defendant's motion to dismiss.

III. Scientific Reliability of PCR-Based STR DNA testing

Finally, the defendant argues that the trial court erred in admitting the results of PCR-based STR DNA testing at trial. Although we have adopted the test set forth in Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993), for determining the admissibility of scientific evidence, see Baker Valley Lumber v. Ingersoll-Rand, 148 N.H. 609, 614 (2002), both parties stipulated that, for the purposes of this case, the proper standard for determining the scientific admissibility of PCR-based STR DNA testing is that set forth in Frye v. United States. To be admissible under Frye, we require: 1) general acceptance in the relevant scientific community of the scientific theory or principle; and 2) general acceptance in the relevant scientific community of the techniques, experiments, or procedures applying that theory or principle. State v. Vandebogart (DNA), 136 N.H. 365, 376 (1992). We review the trial court's rulings on evidentiary matters, including those regarding the reliability of novel scientific evidence, with considerable deference, and will reverse the court's decision only if its exercise of discretion is unsustainable. See State v. Hungerford, 142 N.H. 110, 117 (1997); see also State v. Lambert, 147 N.H. 295, 296 (2001) (explaining unsustainable exercise of discretion standard). When the reliability or general acceptance of novel scientific evidence is not likely to vary according to the circumstances

of a particular case, however, we review that evidence independently. Hungerford, 142 N.H. at 117; see also Vandebogart (DNA), 136 N.H. at 376.

Because we have previously discussed the general theory underlying DNA profiling, see State v. Vandebogart, 139 N.H. 145, 152-54 (1994); Vandebogart (DNA), 136 N.H. at 368-73, we begin our discussion with a brief overview of PCR-based STR DNA testing. In doing so, we refer to the trial court's extensive and detailed explanation as well as the testimony received at the Frye hearings and applicable case law.

As with other forms of DNA testing, the PCR-based STR method begins with the extraction of DNA from a sample. The strands of DNA are then split in half using heat application and small segments are duplicated using the PCR technique. The PCR method refers to the amplification of DNA material where a chemical reaction takes place in which polymerase, an enzyme, is used to copy a specific DNA location so that the particular DNA region can be typed and compared to DNA of a known sample. The PCR procedure duplicates the DNA segments to the point where they are numerous enough to be measured by a process that involves: 1) tagging the relevant DNA segments with fluorescent dye; 2) scanning the sample containing the tagged DNA segments with a laser; and 3) recording the results of the laser scan by computer. The PCR method allows an analyst to obtain a DNA profile from a smaller amount of DNA than previously available using restriction fragment length polymorphism (RFLP) testing, the profiling technique examined in Vandebogart (DNA). See Vandebogart (DNA), 136 N.H. at 370-73.

STR testing, which involves the testing of DNA at three or more genetic markers, is a subtype of the PCR method. See People v. Hill, 107 Cal. Rptr. 2d 110, 117 (Ct. App. 2001). The PCR-based STR testing in this case involved the use of thirteen segments, or loci, of DNA. These thirteen loci are the same ones that are used in the federal DNA database known as the combined DNA index system. At each locus, an individual's genetic code contains a combination of chemical markers organized into a pattern. These chemical patterns repeat themselves and these repeats can be chemically cut apart from one another. At any particular chromosomal locus, an individual will have a characteristic inherited from each of his or her parents, known as an allele. Further, at any given locus, a person will have DNA with a specific number of repeats of these alleles from each parent. Thus, for example, a person's PCR-based STR DNA profile for a particular DNA locus could contain a ten-repeat allele from his or her mother and a twelve-repeat allele from his or her father. STR testing involves the examination of short repeats and distinguishes between individuals by comparing the number of repeats at certain loci.

In performing the PCR-based STR testing, Cellmark used commercial test kits manufactured by Perkin-Elmer/Applied Biosystems known as the "Profiler Plus" and "Cofiler." These test kits contain synthetic primers and enzymes that facilitate DNA amplification and DNA typing at the thirteen loci. Cellmark also used a machine called the ABI Prism 310 Genetic Analyzer, which marks the DNA using fluorescent dyes and separates the copied DNA by length. The results from this procedure are then printed in the form of peaks on a graph known as an electropherogram, which is interpreted by a DNA analyst. If the pattern of repeats in the known DNA strand matches the pattern in the questioned strand, the analyst reports that the donor of the known sample cannot be conclusively eliminated as the source of the questioned sample. Similar to RFLP testing, the analyst performs a statistical calculation to quantify the significance of the similarity between the known and questioned samples.

As a preliminary matter, we note that the defendant does not challenge the admissibility of the PCR method of DNA analysis, which "has received widespread acceptance in courts." United States v. Trala, 162 F. Supp. 2d 336, 346 (D. Del. 2001). Rather, he argues that: 1) Cellmark's techniques and methodology in interpreting PCR-based STR DNA tests, as well as the commercial test kits used in this case, have not undergone sufficient validation studies; and 2) the STR technology cannot adequately distinguish stutter and other artifacts from sample-specific peaks, which affects the system's ability to identify components of mixed DNA samples.

While we have previously examined the general theory of DNA profiling and the methods and techniques involved in RFLP testing, see Vandebogart (DNA), 136 N.H. at 378-79, we have yet to address the reliability of PCR-based STR

DNA testing. While decisions concerning this form of DNA testing are not widespread, the majority of jurisdictions that have addressed the admissibility of PCR-based STR DNA testing have held that the techniques and procedures used in such testing are scientifically reliable. *See, e.g., People v. Shreck*, 22 P.3d 68, 83 (Colo. 2001) (applying Colorado Rule of Evidence 702); *Lemour v. State*, 802 So. 2d 402, 406 (Fla. Dist. Ct. App. 2001) (applying *Frye*); *State v. Salmon*, 89 S.W.3d 540, 545 (Mo. Ct. App. 2002) (applying *Frye*); *State v. Jackson*, 582 N.W.2d 317, 325 (Neb. 1998) (applying *Frye*); *State v. Butterfield*, 27 P.3d 1133, 1143 (Utah 2001) (applying Utah Rule of Evidence 702). In 1996, the National Research Council issued a report stating that "one of the most promising of the newer PCR techniques involves amplification of loci containing Short Tandem Repeats (STRs), that STR testing is coming into wide use, [and] that STR loci appear to be particularly appropriate for forensic use." *Butterfield*, 27 P.3d at 1142 (quotations, citations and brackets omitted). Numerous articles published in both scientific and forensic journals acknowledge the widespread acceptance of PCR-based STR DNA testing in the forensic setting. *Id.* at 1142-43 (citing articles). Moreover, PCR-based STR DNA testing is recognized and used in virtually every State and by the Federal Bureau of Investigation. *State v. Deloatch*, 804 A.2d 604, 611 (N.J. Super. Ct. Law Div. 2002).

At the *Frye* hearing, one of the State's expert witnesses, Doctor Robin Cotton, a forensic scientist and molecular biologist who works as a forensic laboratory director for Cellmark, testified that the PCR method of STR DNA testing, as well as the methods and techniques underlying the use of the Profiler Plus and Cofiler kits with the 310 Genetic Analyzer, are generally accepted in the relevant scientific communities of forensic science and molecular biology. *Cf. Jackson*, 582 N.W.2d at 325 (stating that general acceptance in scientific community may be established by testimony of director or supervisor of DNA forensic laboratory). She also stated that "over a hundred forensic laboratories [are] doing DNA testing across the country," and that "virtually all of the labs that intend to continue DNA testing are either in the process of validating or have completed validation of the 13 loci." In addition, she stated that all laboratories utilizing the fluorescent STR method are testing samples at at least thirteen loci. Finally, the trial court noted that Doctor Cotton testified that PCR-based STR testing has largely replaced RFLP testing as the standard DNA test in the forensic field.

The defendant attempts to discredit the testimony of both Doctor Cotton and the State's other expert witness, Doctor Ranajit Chakraborty, on the ground that they are biased. It is well settled that the trier of fact is in the best position to measure the persuasiveness of evidence and the credibility of witnesses. *Cheshire Toyota/Volvo, Inc. v. O'Sullivan*, 129 N.H. 698, 701 (1987). As the trial court correctly stated, the proper way to expose a witness's bias is through vigorous cross-examination during the hearing. *See id.* Here, after four days of hearings in which the State's experts were subjected to both direct and cross-examination, the trial court expressly found that the State's witnesses were not unduly biased or partial, and were qualified to represent the views of the larger scientific community. We see no reason to overturn the trial court on this issue.

The defendant next argues that the PCR-based STR DNA test is not admissible under *Frye* because the commercial testing kits used in this case and Cellmark's internal laboratory procedures have not undergone sufficient validation testing. The State argues, and the trial court ruled, that these validation concerns are not relevant to the *Frye* analysis. We agree. First, "the Cofiler and Profiler materials kits do not represent a separate part of the [DNA] typing process, but rather, simply contain materials for beginning the PCR process." *Trala*, 162 F. Supp. 2d at 346. Thus, questions as to the reliability of these commercial testing kits go to the weight of the evidence, not their admissibility. *See Shreck*, 22 P.3d at 81 (citing cases). Similarly, questions relating to the internal validation procedures of an individual testing laboratory go to either the admissibility or the weight to be given the evidence in a particular case, not admissibility under *Frye*. *See Vandebogart (DNA)*, 136 N.H. at 379; *see also People v. Owens*, 725 N.Y.S.2d 178, 183 (Sup. Ct. 2001) (challenges to laboratory's testing protocols and procedures are questions of foundation or weight to be dealt with at trial). In *Vandebogart (DNA)*, we rejected the argument that RFLP DNA testing was not generally accepted in the scientific community because, among other reasons, certain FBI internal validation studies were insufficient. *Vandebogart (DNA)*, 136 N.H. at 379. For this reason, we also agree with the trial court that the defendant's argument, that Cellmark failed to conduct sufficient validation studies before raising the minimum relative fluorescence unit (RFU) level at which it would

consider a peak on the electropherogram an allele from forty RFUs to sixty, goes to the weight of the evidence rather than its admissibility under Frye.

Nevertheless, the testimony at the Frye hearing supports the trial court's findings that both Cellmark's testing procedures and the Profiler Plus and Cofiler testing kits are validated and scientifically reliable. Doctor Cotton testified regarding the validation studies Cellmark conducted with respect to PCR-based STR DNA testing. She explained that her laboratory performed numerous studies and experiments addressing various issues such as the limits of the instrument's detection and the ability of analysts to interpret mixed samples. She further testified that the majority of laboratories in the United States use the same methods and instruments as Cellmark. The State also introduced a summary of Cellmark's internal validation studies.

In addition, there was evidence introduced that Perkin-Elmer conducted validation studies of its test kits. This evidence included articles that were submitted for publication addressing the design of the kits and the procedures for performing experiments. Doctor Chakraborty testified that his laboratory was involved in testing the Profiler Plus and Cofiler test kits during their developmental stages. Finally, we note that other courts have found the Profiler Plus and Cofiler test kits to be scientifically reliable. See, e.g., Owens, 725 N.Y.S.2d at 181 (recognizing that courts throughout the country have found that STR DNA profiling using the Profiler Plus and Cofiler test kits is reliable and generally accepted by scientific community); Butterfield, 27 P.3d at 1144-45 (citing articles).

While the defendant's expert witnesses were critical of the sufficiency of both Cellmark's and Perkin-Elmer's validation studies, scientific unanimity is not required to render such theory or technique admissible under Frye. See Vandebogart, 139 N.H. at 156. The isolated criticisms of the defendant do not defeat the existence of a general consensus in the scientific community that PCR-based STR DNA testing is reliable. See id.

The defendant also argues that PCR-based STR testing is not admissible under Frye because the technology cannot adequately distinguish stutter and other artifacts from sample-specific peaks on an electropherogram, which affects the ability to analyze mixed samples. Specifically, he asserts that the problems of stutter and other artifacts have not been sufficiently studied by Cellmark, Perkin-Elmer, or the scientific community to render STR testing admissible under Frye.

An "artifact" is a result that does not come from the things one actually intends to test. One form of artifact is called a "stutter," which occurs in STR testing when a small sample of production of a fragment is one base pair shorter than the true allele. Artifacts are not unique to STR tests, but rather are present in many forms of DNA testing. Doctor Cotton testified that the scientific community understands artifacts and can work around them.

Testimony at the Frye hearing established that mixed samples, which involve DNA of two or more people, are one of the most common things that scientists encounter in forensic science. Doctor Peter D'Eustacio, a defense expert, testified that mixture interpretation has been examined extensively and is not a new concept in forensic science. The State introduced various articles at the Frye hearing addressing specifically the testing and interpretation of mixtures in the forensic DNA setting. As explained above, Cellmark has also conducted various internal validation studies to address the problems of mixtures. Finally, Doctor Cotton stated that Cellmark follows the DNA Advisory Board guidelines, which cover such areas as validation testing and internal operating procedures to ensure testing accuracy.

While the presence of artifacts could affect an analyst's interpretation of an electropherogram, this fact does not undermine the general acceptance of the techniques, methods, or procedures by which the data is produced. Thus, in light of the evidence presented in this case, we hold that interpretive issues raised by the defendant are properly the subject of cross-examination and affect the weight to be given such evidence in a particular case. See Trala, 162 F. Supp. 2d at 349 (defendant's challenges to FBI laboratory's testing methodology involving stutters, allelic dropout and the ability to analyze mixed samples are directed to the weight of the evidence and not its admissibility); see also Vandebogart (DNA), 136 N.H. at 379.

Lastly, while not argued specifically in his brief, the defendant asserted at oral argument that Cellmark's method of interpreting electropherograms to calculate a DNA match constitutes an improper application of the product rule. "The product rule is one technique used to determine the probability of finding a match between a DNA sample from a suspect and DNA material found in a body fluid sample recovered from a crime scene." Jackson, 582 N.W.2d at 322. "Under the product rule, the frequency in the population base of each allele disclosed in the DNA test is multiplied to produce the frequency of the combination of all the alleles found." Com. v. Rosier, 685 N.E.2d 739, 743 (Mass. 1997) (quotation omitted). Use of the product rule has been found generally accepted in the scientific community. See, e.g., Rosier, 685 N.E.2d at 745-46; State v. Gore, 21 P.3d 262, 275 (Wash. 2001).

Even assuming without deciding that Cellmark did misapply the product rule, we disagree with the defendant that this renders the results of PCR-based STR DNA testing inadmissible under Frye. The contention that Cellmark failed to follow generally accepted techniques when analyzing DNA under the product rule is an issue that goes to the weight that evidence should be given in a particular case, not the general admissibility under Frye. See Vandebogart (DNA), 136 N.H. at 379; see also Smith v. State, 702 N.E.2d 668, 673-74 (Ind. 1998) (argument that laboratory's techniques rendered its frequency calculations scientifically unreliable was a question of weight, not admissibility); State v. Kinder, 942 S.W.2d 313, 327 (Mo. 1996) (en banc), cert. denied, 522 U.S. 854 (1997) (criticism of particular methods used to apply product rule pertain to the weight to be given the DNA evidence at trial).

As a result, based upon the evidence presented during the Frye hearings and the overwhelming acceptance of PCR-based STR DNA testing in other cases, we affirm the trial court's ruling that the methods and techniques used in PCR-based STR DNA testing are generally accepted in the scientific community.

Affirmed.

BROCK, C.J., and NADEAU, J., concurred.