NEW YORK COURT OF APPEALS ROUNDUP

DISCLOSURE OF SOFTWARE SOURCE CODE NOT REQUIRED TO ESTABLISH ACCEPTANCE OF DNA EVIDENCE

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In *People v. Wakefield*, the Court of Appeals recently addressed the admissibility of expert scientific DNA evidence that is based on complex computer analysis and the discoverability of the computer source code underlying that analysis. The court found that the trial court had properly admitted DNA evidence generated by the TrueAllele Casework System (TrueAllele) even though the defense had not been provided with the underlying source code for the software utilized by TrueAllele.

The case involved a victim who was found dead in his apartment on April 12, 2010. After the victim missed a scheduled appointment and was unreachable, a case worker from a mental health services organization came to the victim's apartment to perform a welfare check. The victim was discovered with a guitar amplifier cord wrapped around his neck. There was no sign of forced entry, evidence that a struggle had taken place or indication that his death was a suicide. Several items, including a PlayStation video game, a laptop computer and a distinctive orange duffel bag were missing from the victim's apartment. Witnesses had seen the defendant in the victim's company that weekend and the defendant admitted to three people that he had choked the victim. Another witness saw the defendant with an orange duffel bag similar to the one stolen from the victim's apartment while the defendant was attempting to trade a PlayStation and a laptop for drugs. The victim's Play Station was later recovered from the home of a local drug dealer.

The police collected DNA samples from evidence at the crime scene, including four samples from the front and rear of the victim's shirt collar, the victim's forearm and the amplifier cord with which he was strangled. A DNA sample was obtained from the defendant and the samples were sent to the New York State Police Forensic Investigation Center for conventional PCR DNA analysis. According to that analysis, neither the victim nor the defendant could be excluded from the samples obtained from the rear shirt collar and the victim's forearm with combined probabilities of inclusion (meaning the chance that the two samples did not include DNA from the victim and the defendant) of 1 in 1,088 and 1 in 422 respectively.

The data from the DNA testing was then sent to Cybergenics, a private company that used the TrueAllele software system, for additional testing. TrueAllele calculates the likelihood that an individual's DNA is included in a particular sample using what is known as continuous probabilistic genotyping, which is a computer-based form of DNA analysis that uses complex mathematical models and artificial intelligence to derive DNA profiles from multi-person samples. According to the test performed by Cybergenics, it was 5.88 billion times more probable that the defendant was a contributor to the DNA sample from the amplifier cord than an unrelated Black person, 170 quintillion times more probable that the defendant was a contributor to the sample from the rear shirt collar than an unrelated Black person, 303 billion time more probable that the defendant was a contributor to the sample from the front shirt collar than an unrelated

Black person, and 56.1 million times more probable that the defendant was a contributor to the forearm sample than an unrelated Black person.

Defendant was charged with murder in the first degree, murder in the second degree and robbery in the first degree. Defendant filed a pretrial motion to preclude the introduction of any evidence regarding the results of the TrueAllele testing by Cybergenics or, in the alternative, for a *Frye* hearing to determine whether TrueAllele was generally accepted in the relevant scientific community and therefore admissible in New York courts pursuant to *Frye v. United States*, 293 F 1013 (D.C. Cir. 1923). The trial court granted the motion to the extent of permitting a *Frye* hearing.

Before the *Frye* hearing, the defense made a supplemental discovery request seeking, among other items, the computer source code for TrueAllele. The People did not have the source code and Cybergenics refused to produce it. The People accordingly denied the request as outside the scope of the criminal discovery provisions of Criminal Procedure Law 240.20 that were then in effect.

The trial court conducted the *Frye* hearing in October 2014. The People called the founder of Cybergenics, Dr. Mark Perlin, among others at the hearing. The witnesses described TrueAllele and how it works, and presented evidence as to general recognition in the scientific community of the principles underlying the continuous probabilistic genotyping approach that it utilizes. The People also presented evidence that TrueAllele has been the subject of numerous peer-reviewed articles in scientific journals and 25 separate validation studies.

At the conclusion of the hearing, the trial court found that TrueAllele was generally accepted in the relevant scientific community and denied the defense motion to exclude evidence of the TrueAllele test results. Before the trial, the defense moved for disclosure of the TrueAllele source code that the People had refused to turn over before the *Frye* hearing. Defendant argued that the report generated by TrueAllele was testimonial in nature and that he needed the source code in order to meaningfully exercise his constitutional rights to confront his accusers. The trial court denied the motion and found that the source code was not a witness or testimonial and that defendant would have an opportunity to cross-examine Dr. Perlin at trial. At trial, the People presented evidence regarding the TrueAllele test results among other evidence, including evidence of the facts discussed above. The jury convicted defendant of murder in the first degree and robbery in the first degree.

Defendant appealed and the Appellate Division, Third Department affirmed. The Court of Appeals granted leave to appeal and, in a majority opinion written by Chief Judge Janet DiFiore and joined by Judges Garcia, Singas and Cannataro, the Court affirmed and found that the trial court did not abuse its discretion in determining that the TrueAllele methodology met the *Frye* standard of general acceptance in the scientific community and evidence of its results was properly admitted.

Defendant argued, inter alia, that the evidence presented at the *Frye* hearing was insufficient because the TrueAllele methodology cannot be generally accepted as a matter of law absent disclosure of the underlying source code. The majority rejected this argument and noted that the evidence at the *Frye* hearing established that the foundational mathematical principles for continuous probabilistic genotyping are widely accepted in the scientific community and that TrueAllele had been generally accepted based on the empirical evidence of its validity as demonstrated by multiple validation studies including collaborative studies, peer-reviewed publications and its use in other jurisdictions. While Dr. Perlin was involved in and

co-wrote most of the validating studies, the majority noted that Dr. Perlin's involvement had been fully disclosed and that four of the studies had been conducted independently.

According to the majority, disclosure of the underlying source code was not required to establish general acceptance at the *Frye* hearing. The majority noted that, as to the pre-hearing demand, disclosure of the source code was not required by the criminal discovery rules in effect at the time and defendant had not made any further pre-hearing motion to demonstrate a particularized need for the source code. Moreover, the empirical evidence of reliability in the validation studies of TrueAllele and the general acceptance in the scientific community of its underlying methodology provided additional reasons why disclosure of the source code was unnecessary.

The majority acknowledged that the TrueAllele report was testimonial but rejected defendant's argument that the source code itself is the declarant and found that defendant's rights were protected by his ability to cross-examine Dr. Perlin and the analyst who performed the initial testing of the DNA samples. The majority did not address the substance of defendant's separate argument that he was entitled to disclosure of the source code in order to effectively cross-examine Dr. Perlin at trial because it found that defendant had failed to preserve that argument for appeal.

Judge Jenny Rivera, joined by Judges Wilson and Troutman, issued a lengthy concurring opinion. They concurred with the majority in affirming defendant's conviction solely because the overwhelming evidence of defendant's guilt other than the TrueAllele test results rendered the trial court's admission of those test results harmless error. But the concurring judges disagreed strongly with the majority as to the trial court's admission of the TrueAllele test results after the *Frye* hearing. In addition to Dr. Perlin's role in co-authoring most of the validating studies, the concurring judges focused on the fact that the source code itself had not been validated in these studies and questioned how software using a complex algorithm ever could be deemed reliable in the scientific community without an independent review of how that software reaches its results.

Judge Rivera's concurring opinion noted that the use of artificial intelligence within our system of justice presents challenging questions. Given the length and detailed nature of both the majority and concurring opinions, that is something on which all seven judges apparently agree. Questions such as the discoverability of the source code used by experts and the admissibility of scientific expert evidence in the absence of disclosure of that source code will continue to arise, including with respect to scientific fields other than DNA analysis, given the increasing use of complicated computer algorithms and artificial intelligence in our society.

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