

IN THE SUPERIOR COURT OF THE STATE OF DELAWARE

STATE OF DELAWARE,)
)
)
 v.)
)
 KWESI HUDSON,) ID NO. 1809009750
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 Defendant.)
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Date Submitted: September 27, 2021
Date Decided: October 15, 2021

Upon the Defendant's Motion in Limine. DENIED.

ORDER

John W. Downs, Esquire, and Jenna Milecki, Enquire, Deputy Attorney Generals, Department of Justice, Wilmington, Delaware, Attorneys for the State of Delaware.

Raymond Armstrong, Esquire, Wilmington, Delaware, Attorney for Defendant.

SCOTT, J.

INTRODUCTION

Before the Court is Defendant Kwesi Hudson's ("Mr. Hudson") Motion in *Limine* pursuant to Delaware Rule of Evidence 401, 402, 403, and 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc*¹ (the "Motion"). After reviewing the Motion and the State of Delaware's (the "State") Response, Mr. Hudson's Motion is **DENIED.**

BACKGROUND

On February 13, 2017, in North Wilmington, Mr. Hudson approached victim, L.M., at her apartment and forced her, at gunpoint, into her car. Mr. Hudson sexually assaulted L.M. and drove her to three banks to withdraw cash from the ATMs.

On February 19, 2017, in the area of Route 7 in Wilmington, Mr. Hudson approached victim S.C. and forced her into her apartment at gunpoint. Mr. Hudson sexually assaulted S.C. with the firearm he carried. Mr. Hudson then forced S.C. into her car and drove her to four banks to withdraw cash from the ATMs. The victim fled at the last stop and escaped.

On March 6, 2017, in the Pike Creek area of Wilmington, Mr. Hudson approached victim J.B. and attempted to force her into her apartment at gunpoint. J.B.'s boyfriend came to the door Mr. Hudson fled the scene.

¹ 509 U.S. 579 (1993)

The Delaware State Police and New Castle County Police, as well as law enforcement in Pennsylvania, believed Mr. Hudson committed several robberies in Delaware and Pennsylvania.

On May 9, 2017, Mr. Hudson committed a robbery at a pharmacy in Upper Chichester, PA. Police found a black ski mask and pellet gun near the scene. Upon DNA analysis for the ski mask, it was determined the DNA found on the mask matched Mr. Hudson's known DNA sample.

On May 24, 2017, Mr. Hudson committed a robbery at a pharmacy in Media, PA. Police apprehended him and took him into custody.

Upon investigation, Mr. Hudson was identified as a suspect in the three sexual assaults and robberies on female victims from February – March of 2017.

On July 13, 2018, the pellet gun left behind at the Upper Chichester pharmacy robbery and known DNA samples from victims L.M., S.C., and J.B. was submitted to DNA Labs International.

DNA Labs International used probabilistic genotyping method, STRmix™ (“STRmix”) on the sample which contained multiple DNA samples, known as mixture DNA. In the Lab's report, dated August 15, 2018, it stated “The DNA profile obtained from the extract is approximately 320 trillion times more probable if the sample originated from [victim S.C.]... and two unknown person than if it originated from three unknown persons. Therefore, there is extremely strong

support than [S.C.] and two unknown persons contributed to this DNA profile, rather than three known persons.”

PARTIES’ ASSERTIONS

A. The State

The State intends to introduce expert testimony on the DNA mixture evidence report from DNA Labs International. The State intends to call Alicia M. Cadenas (“Ms. Cadenas”), a Forensic DNA Analyst who worked on and completed the report in contention between the parties. The report found “The DNA profile obtained from the extract is approximately 320 trillion times more probable if the sample originated from [victim S.C.] and two unknown persons than if it originated from three unknown persons. Therefore, there is extremely strong support [victim S.C.] and two unknown persons contributed to this DNA profile, rather than three unknown persons.”

B. Mr. Hudson

Mr. Hudson argues the introduction of such expert testimony would violate D.R.E. 401, 402, 403, and 702. Mr. Hudson further asserts, with respect to a Daubert analysis, the conclusions made by DNA Labs International on the mixture DNA analysis are based on “unfounded and unsupported pseudoscience,” based on “a lab technician’s interpretation of unknown mathematical computation” and the probability results are not based on “concrete or scientifically accepted practices.” To buttress these claims, Mr. Hudson relies solely on the “KEY TAKEAWAY”

statements made in the first nine pages of the two-hundred-fifty-page draft report titled, “DNA Mixture Interpretation: A NIST Scientific Foundation Review” (the “NIST Report”)². Mr. Hudson uses these generalized KEY TAKEAWAY points about mixture DNA analysis in an attempt to undermine the DNA mixture analysis of a specific probabilistic genotyping method, STRmix.

STANDARD OF REVIEW

Delaware Rule of Evidence 702 (D.R.E. 702) governs the admissibility of expert testimony and provides as follows:

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 upon 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.³

² The National Institute of Standard and Technology (“NIST”) electronically published the NIST Report on June 9, 2021. The report was open for public comments until August 23, 2021, to allow NIST to review the comments before publishing the report in final form. Currently, there remains no final version of the NIST Report. *NIST Publishes Review of DNA Mixture Interpretation Methods*, NATIONAL INSTITUTE OF STANDARD AND TECHNOLOGY (June 9, 2021), <https://www.nist.gov/news-events/news/2021/06/nist-publishes-review-dna-mixture-interpretation-methods>.

³ D.R.E. 702.

D.R.E. 702 is substantially similar to Federal Rule of Evidence 702,⁴ which is governed by *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,⁵ and *Kumho Tire Co., Ltd. v. Carmichael*.⁶ In *Daubert*, the United States Supreme Court held that F.R.E. 702 requires the trial judge to act as a “gatekeeper” and determine whether the proffered expert testimony is not only relevant, but reliable.⁷ The factors considered in this determination are “meant to be helpful, not definitive, and may or may not be pertinent depending on the nature of the issue, an expert's particular expertise, and the subject of the testimony.”⁸ Those factors include:

- (1) whether a theory or technique has been tested;
- (2) whether it has been subjected to peer review and publication;
- (3) whether a technique had a high known or potential rate of error and whether there are standards controlling its operation; and
- (4) whether the theory or technique enjoys general acceptance within a relevant scientific community.⁹

The focus of the *Daubert* analysis does not concern the resulting conclusions but rather the principles and methodology used to form the expert's opinion.¹⁰

⁴ See *M.G. Bancorporation, Inc. v. Le Beau*, 737 A.2d 513, 521 (Del. 1999), as modified on denial of reargument (May 27, 1999) (“Since Delaware Rule of Evidence 702 is identical to its federal counterpart, we rely upon the United States Supreme Court's most recent authoritative interpretation of Federal Rule of Evidence 702.”).

⁵ 509 U.S. 579 (1993).

⁶ 526 U.S. 137 (1999).

⁷ *Daubert*, 509 U.S. at 589.

⁸ *Norwood v. State*, 813 A.2d 1141 (Table), 2003 WL 29969, at *2 (Del. 2003).

⁹ *Daubert*, 509 U.S. at 592-93.

¹⁰ *Id.* at 594.

In addition to the Daubert analysis, the Delaware Supreme Court created a five-prong test in determining the admissibility of scientific or technical expert's testimony. Therefore, this Court must also determine whether:¹¹

1. The witness is qualified;¹²
2. The evidence is otherwise admissible, relevant, and reliable;¹³
3. The bases for the opinion are those reasonably relied upon by experts in the field;¹⁴
4. The specialized knowledge being offered will assist the trier of fact to understand the evidence or determine a fact in issue;¹⁵ and
5. The evidence does not create unfair prejudice, confuse the issues, or mislead the jury.¹⁶

“[T]he proponent of the proffered expert testimony bears the burden of establishing the relevance, reliability, and admissibility by a preponderance of the evidence.”¹⁷

However, the proponent must only demonstrate that the expert's opinions are reliable.¹⁸ Thus, where an expert's opinion is challenged, “the trial judge must decide

¹¹ *Williams v. Desperito*, 2011 WL 7452803, at *3 (Del. Super. Ct. Oct. 24, 2011) (citing *Bowen v. E.I. DuPont de Nemours & Co., Inc.*, 906 A.2d 787, 795 (Del. 2006); *Tolson v. State*, 900 A.2d 639, 645 (Del. 2006)).

¹² See D.R.E. 702.

¹³ See D.R.E. 401; D.R.E. 402.

¹⁴ See D.R.E. 703.

¹⁵ See D.R.E. 702.

¹⁶ See D.R.E. 403.

¹⁷ *Minner v. Am. Mortg. & Guar. Co.*, 791 A.2d 826, 843 (Del. Super. Ct. 2000).

¹⁸ *Williams*, 2011 WL 7452803, at *3 (citing *In re Asbestos Litig.*, 911 A.2d 1176, 1201 (Del. Super. 2006)).

if the expert's testimony ‘has a reliable basis in the knowledge and experience of the relevant discipline.’”¹⁹

DISCUSSION

By providing only a draft of the NIST Report, Mr. Hudson contends the expert testimony regarding the conclusions made by DNA Labs International are based on “unfounded and unsupported pseudoscience,” based on “a lab technician’s interpretation of unknown mathematical computation” and the probability results are not based on “concrete or scientifically accepted practices.” For these reasons, Mr. Hudson requests to exclude DNA Labs International’s Technician, Alicia M. Cadenas, from testifying. He simply copies the generalized “KEY TAKEAWAY” statements made in the first ten pages of the NIST Report.

In the States response to Mr. Hudson’s Motion, the State submits an Affidavit from DNA Labs International (“DNA Labs Affidavit”). Therein, Rachel H. Oefelein, Director of Research & Innovation/Quality Assurance Manager/Senior DNA Analyst, and Cristina L. Rentas, Technical Leader/Training Manager/Senior DNA Analyst for DNA Labs, refute Mr. Hudson’s generalized points made in the Motion. The analysts not only attest to STRmix’s reliability and internal validations, but also, they comment on every “KEY TAKEAWAY.” The DNA Labs affidavit

¹⁹ *M.G. Bancorporation*, 737 A.2d at 521 (citing *Kumho*, 526 U.S. at 138 (quoting *Daubert*, 509 U.S. at 592)).

speaks to how the method is tested used “lab-created mixtures” to gauge the reliability of the technology.

In addition to the DNA Labs Affidavit, the State attaches providing comments to NIST Article from the Scientific Working Group on DNA Analysis Methods (SWGDM), the New York City Office of the Chief Medical Examiner, the National Institute of Standards and Technology, the Institute of Environmental Science and Research Limited, New Zealand, and the American Society of Criminal Laboratory Directors, Inc. All the organizations mentioned had concerns regarding the findings of the NIST Article, as well as harsh criticisms.

Mr. Hudson has not refuted or responded to anything in the DNA Labs Affidavit, any comments made by organizations about the NIST article, or the assertion STRmix has been accepted in many other jurisdictions.

Daubert Factors Are Satisfied

This Court finds STRmix satisfies the Daubert Factors. In *United States v. Gissantaner*, the Sixth Circuit was tasked with applying the four inquiries required of Daubert to the same probabilistic genotyping software program present in this case, STRmix. Upon a lengthy analysis of the required factors, the court found “All in all, STRmix satisfies Rule 702 and the case law construing it. In the words of Rule 702, it is the ‘product of reliable principles and methods.’”²⁰ This Court adopts the

²⁰ *United States v. Gissantaner*, 990 F.3d 457, 467 (6th Cir. 2021)

analysis and conclusion of the Federal Appellate Court as the same software and caselaw factors applied.

The five-prong test in determining the admissibility of scientific or technical expert's testimony is satisfied

Given Mr. Hudson's ground of contention with the expert testimony, the Court must focus on the first and third factors of Delaware Rule 703's five step analysis mentioned above: (1) the qualifications of the expert to testify and (3) the bases for the expert's opinion are those reasonably relied upon by experts in the field.

Ms. Cadenas' expert opinions are (1) relevant, (2) will assist the fact finder, and (3) will not create unfair prejudice.

In this Court's opinion, there is no doubt Ms. Cadenas' expert opinions satisfy the second (relevance), fourth (assistance to the fact finder) and fifth (avoidance of unfair prejudice) factors examined under the five-step admissibility analysis.²¹ Expert testimony is relevant if it assists the fact finder in "understand[ing] the evidence or ... determin[ing] a fact in issue."²² And evidence creates unfair prejudice when it invites a decision on an improper basis, commonly, emotion rather than reason.²³

²¹ *Bowen*, 906 A.2d at 795.

²² *Daubert*, 509 U.S. at 591 (quoting Fed. R. Evid. 702).

²³ *Henlopen Hotel, Inc. v. United Nat'l Ins. Co.*, 2020 WL 2333333, at *5 (Del. Super. Ct. Jan. 10, 2020).

Ms. Cadenas' testimony is relevant to understanding the DNA analysis from a swab taken from a gun, which was alleged to be belonging to Mr. Hudson. The testimony will assist the fact finder in understanding the results of the report and the method in which the sample was taken and analyzed. Mr. Hudson has not suggested Ms. Cadenas testimony will create any unfair prejudice. The fact finder may credit Ms. Cadenas testimony, or it may not. However, nothing in the record suggests Ms. Cadenas' testimony will appeal to or persuade the jury on any improper bias.

Ms. Cadenas is qualified to give her opinion.

Ms. Cadenas is qualified to give her opinion about DNA Labs International's use of STRmix based on her knowledge and expertise as a DNA Analyst, her education in forensic science, and her review and work on the DNA sample at issue here. A trial judge acts as a gatekeeper in deciding whether an expert "has a reliable basis in the knowledge and experience of [the relevant] discipline."²⁴ Delaware recognizes that an expert may be qualified by credentials outside of her formal training or designated specialty, and in determining admissibility, her qualifications must be scrutinized with "due regard" for the specialization of modern science.²⁵ And certainly, where appropriate, an expert might be rejected when her education,

²⁴ *Bowen*, 906 A.2d at 794 (Del. 2006) (citing *M.G. Bancorportation, Inc. v. Le Beau*, 737 A.2d 513, 522 (Del. 1999)).

²⁵ *Id.* at 796.

training, and experience doesn't align with the subject matter of the anticipated testimony.²⁶

Ms. Cadenas holds a M.S. in Forensic Science. She has worked in DNA analysis since 2008, is a Technical Leader/ Lab Supervisor/ Senior DNA Analyst for DNA Labs International, and personally performed the DNA analysis and provided a report on the DNA sample at issue in this case. Accordingly, Ms. Cadenas' education, training and experience align with the subject matter of the anticipated testimony. Her professional and practical expertise constitute "knowledge, skill, experience, or education" to allow her to give expert opinion in accordance with Rule 702.

Ms. Cadenas' DNA analysis opinions are reliable as they are based on reliable methodology relied upon by experts in the DNA analysis field.

Mr. Hudson contend Ms. Cadenas' opinions are based on an unreliable methodology, as the findings are based on "unfounded and unsupported pseudoscience," "a lab technician's interpretation of unknown mathematical computation," and the probability results are not based on "concrete or scientifically accepted practices."

²⁶ *E.g., Spencer v. Wal-Mart Stores East, LP*, 930 A.2d 881, 888-89 (Del. 2007) (affirming this Court's finding that a forensic architect was not qualified as an expert on ice and snow removal).

When an expert speaks to scientific or specialized knowledge, it will be reliable when the testimony is required to be grounded in scientific methods and procedures and “supported by appropriate validation—i.e., ‘good grounds,’ based on what is known.”²⁷ The method utilized by STRmix is reliable as there are internal and external validation checks to insure reliability.²⁸ Despite Mr. Hudson’s assertion the results of the DNA analysis rely on “a lab technician’s interpretation of unknown mathematical computation[,]” DNA technicians do not author analysis or interpretations.²⁹ Instead, the author of certificate of analysis in the case is a Senior DNA Analyst and serves as the Director of Research & Innovation and Quality Assurance Manager so results are not based on DNA technician findings.³⁰ Finally, to Mr. Hudson’s contention the results reflect “if” and likelihood ratios rather than “concrete and scientifically accepted practices[,]” likelihood ratios have been used in DNA analysis since the introduction of DNA analysis in the 1980’s.³¹ The use of likelihood ratios, i.g. using statements including “if” and “than”, minimize the risk of confusing the fact finder because the occurrence of “prosecutors’ fallacy” and/or “defense attorney’s fallacy” decreases.³² Ultimately,

²⁷ *Daubert*, 509 U.S. at 590.

²⁸ State’s Resp. Def’s Mot. Limine Ex. B. DNA Labs International Affidavit at p. 2.

²⁹ *Id.* at p. 3.

³⁰ *Id.*

³¹ *Id.* at p. 1.

³² *Id.* at p. 3.

the likelihood of inadvertently reporting a transposed conditional decreases when likelihood ratios are used.³³ This method of reporting has also been studied extensively in peer reviewed published articles.³⁴

Having considered the parties' arguments, this Court finds the methodology used in reaching Ms. Canedas' opinions to be reliable as the method is supported by appropriate validation in the DNA analysis field.

Daubert Hearing is Not Warranted

A Daubert hearing is not mandatory for all experts.³⁵ "A pretrial procedure of some sort is, however, required. The Judge must gather the necessary information and evaluate the reliability of the underlying principles, the methodology employed by the expert witness, and the potential relevance of the proposed evidence. [internal cite omitted] The Court, in the normal course, should be supplied with the expert's report and the expert's deposition testimony, as well as any supporting affidavits, prior to making any determination as to whether a Daubert hearing is necessary. At that point, the Court should decide: 1) if a Daubert hearing should be held, and 2) on what issues. If, for special reasons, a Daubert hearing is deemed necessary, the Court should try to narrow the issues prior to the evidentiary hearing."³⁶ Just like in *Minner*,

³³ State's Resp. Def's Mot. Limine Ex. B. DNA Labs International Affidavit at p. 3.

³⁴ *Id.*

³⁵ *Minner v. Am. Mortg. & Guar. Co.*, 791 A.2d 826, 845 (Del. Super. Ct. 2000).

³⁶ *Id.* at 845–46.

a Daubert hearing is not necessary because no special circumstances exist here, and the parties have provided this Court with sufficient evidentiary basis to perform its “gatekeeping” function.³⁷

CONCLUSION

This Court is satisfied in the State established STRmix has been examined and admitted in other courts of competent jurisdiction, particularly where federal courts have applied the Daubert Standard to STRmix and have admitted the testimony.

Neither preclusion of the expert from testifying nor a hearing is necessary. Mr. Hudson may make their contentions known concerning the reliability and variability of the STRmix software on cross-examination and through their own expert witnesses if Mr. Hudson so chooses. Nothing in his motion demonstrates that a Daubert hearing, or preclusion of evidence is necessary or warranted, especially considering the DNA Labs Affidavit and the comments made about the draft NIST Article, which demonstrate, for purposes of defeating Mr. Hudson’s motion, the STRmix method is scientifically valid and can be applied in this case.

³⁷ *Id.* at 846.

For the reasons stated above, Mr. Hudson's Motion in *Limine* is **DENIED**.

IT IS SO ORDERED.

/s/ Calvin L. Scott
Judge Calvin L. Scott, Jr.