

**DISTRICT COURT OF THE VIRGIN ISLANDS
DIVISION OF ST. CROIX**

**UNITED STATES OF AMERICA and
PEOPLE OF THE VIRGIN ISLANDS,**

v.

**ELVIN WRENSFORD and
CRAIG MULLER,**

Defendants.

Criminal Action No. 2013-0003

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For Defendant Craig Muller

MEMORANDUM OPINION

Lewis, Chief Judge

THIS MATTER is before the Court on Defendant Elvin Wrensford's "Motion for *Daubert* Hearing" (the "Motion") filed on November 22, 2013 (Dkt. No. 52), and joined by Defendant Craig Muller on December 16, 2013. (Dkt. No. 65). In his Motion, Wrensford challenges, *inter alia*, the DNA expert named by the Government—Tiffany A. Roy ("Roy")—and seeks to exclude her testimony under the admissibility requirements of Federal Rule of Evidence 702 and the principles espoused in *Daubert v. Merrill Dow Pharms., Inc.*, 509 U.S. 579

(1993).¹ The Government opposes the Motion. (Dkt. No. 70). An evidentiary hearing was held on February 10, 2014. For the reasons set forth below, the Court will deny Defendant's Motion to the extent that he seeks to exclude the testimony of Roy.

I. INTRODUCTION

On May 10, 2012, at approximately 8:00 p.m., a shooting occurred in the vicinity of Food Town/Gulf Coast Custom Kitchens in Christiansted, St. Croix, Virgin Islands. On May 12, 2012, the victim, Gilbert Hendricks, Jr., died from gunshot wounds to the head suffered in the shooting. Virgin Islands Police Department ("VIPD") Officer Richard Matthews conducted an investigation of the shooting and provided an Affidavit in Support of the Arrest and Detention of Elvin Wrensford and Craig Muller. (Dkt. Nos. 2-1 and 3-1 in 12-cr-12). In his Affidavit, Officer Matthews summarized statements from four witnesses who heard several shots discharged from a red truck occupied by two black males. Some of the witnesses were able to identify the shooter and the driver of the truck. The VIPD apprehended Defendant Wrensford, traveling on foot approximately one hour after the incident and about one and one-half miles from the crime scene. The VIPD recovered a 9 mm firearm with an empty magazine approximately five feet from where Wrensford was apprehended. Defendant Muller was arrested on May 17, 2012. *Id.*

Both Defendants were initially charged with federal and local crimes in an Information filed in the District Court of the Virgin Islands in June 2012. (Dkt. No. 1 in 12-cr-12). On January 29, 2013, the Defendants were indicted. (Dkt. No. 1 in 13-cr-3). Defendants Wrensford and Muller were charged with Possession of a Firearm in a School Zone, in violation of 18 U.S.C. § 922(q)(2)(A); Using a Firearm during a Violent Crime, in violation of 18 U.S.C. §

¹ Defendant Wrensford's Motion for *Daubert* Hearing also challenges and seeks to exclude the testimony of the Government's toolmark/firearms expert. That aspect of the motion will be addressed in a separate opinion.

924(c)(1)(A); Murder in the First Degree, in violation of 14 V.I.C. § 922(a)(1); and Unauthorized Possession of a Firearm, in violation of 14 V.I.C. § 2253(a). In addition, Defendant Wrensford was charged with Possession of a Firearm with an Obliterated Serial Number, in violation of 18 U.S.C. § 922(k). *Id.*

In his *Daubert* Motion, Wrensford challenges “the qualifications, reliability of the DNA testing method, procedures and conclusions made by DNA Labs International via Forensic DNA Analyst, Tiffany A. Roy, who opined on behalf of the Government.” (Dkt. No. 52 at 1). Wrensford goes on to say that Roy’s report “omits protocols and indicates that the DNA was analyzed using one of two approaches”: either the Applied Biosystems Identifiler Plus or the Minifiler DNA profiling system. *Id.* at 1-2. Wrensford then states that it is “unclear which system was used or whether either one has been accepted in the scientific community.” *Id.* at 2. Defendant Craig Muller filed a Notice of Joinder in Wrensford’s Motion for a *Daubert* hearing “as it pertains to defendant Craig Muller.” (Dkt. No. 65).

II. BACKGROUND

A. The Testifying Expert: Tiffany A. Roy

At the *Daubert* hearing, Roy testified that she received a Bachelor of Science degree in Biology from Syracuse University, a Juris Doctor degree from Massachusetts School of Law, and has completed 18 hours towards a Master’s Degree in Forensic Sciences at the University of Florida. She is a member of the Northeastern Association of Forensic Sciences; the American Academy of Forensic Sciences; the International Association for Identification; the Massachusetts Bar; and is certified by the American Board of Criminalistics in Molecular Biology. Currently, she is employed as an adjunct instructor in forensic science at Palm Beach Atlantic University in Florida, a position she has held for the past two years.

Roy has been involved in the field of forensic science for over seven years, starting in 2006 when she began working at the Massachusetts State Police Crime Laboratory (“Police Lab”) as a Forensic DNA Analyst. During her first nine months at the Police Lab, she received specialized training in forensic DNA analysis before she was permitted to analyze any items of evidentiary value. At the Police Lab, she used state of the art DNA technology to analyze biological fluids and tissues. She incorporated the results of her analysis into reports, which formed the basis for legal proceedings. In addition to DNA analysis, Roy collected and preserved trace evidence from crime scenes and maintained a chain of custody for the evidence.

After working at the Police Lab for five years, Roy was hired as a Forensic DNA Analyst at DNA Labs International (“DNA Labs”), where she wrote the expert report at issue in this case. She worked at DNA Labs for two years and nine months, from 2011 until November 2013. Her primary duty at DNA Labs was to examine evidence to detect the presence of DNA. She incorporated her analysis into written reports and often testified in legal proceedings. As a requirement for DNA Labs’ accreditation, she took and passed proficiency tests every six months. The proficiency tests, which included mock case work, ensured that the analysts maintained their capability to perform DNA testing. During her tenure at the Police Lab and DNA Labs, Roy was required to complete eight hours of DNA-specific training every year.

Roy estimated that she has examined thousands of DNA samples in her career, and worked on hundreds if not thousands of cases. She has testified between 60 and 70 times in the area of forensic DNA analysis and serology in state courts in Florida, Montana, Massachusetts, and the Virgin Islands (Superior Court); in federal courts in Florida; and in international courts in the British Virgin Islands, the Royal Cayman Islands, and Turks & Caicos.

B. Theory Behind DNA Testing

Roy explained the theory behind DNA testing. DNA, an acronym for deoxyribonucleic acid, is biological material that exists in cells of the body, which can be found in biological fluids and tissues such as blood, semen, saliva, skin cells, and sweat. A person can transfer DNA by touching certain objects, such as fabric, metal, plastic, and wood. While 99% of human DNA is similar from person to person, the one percent that is different allows DNA analysts to develop a unique profile for an individual.

Roy testified that the DNA testing process she used involves four steps: (1) extraction, where a sample is placed in a tube with certain chemicals and is heated to release the DNA from the cell material; (2) quantification, where the analyst measures how much DNA is present in a sample; (3) amplification, which involves making millions of identical copies of the DNA in the target areas being examined through a polymerase chain reaction (“PCR”) process which mimics the body’s natural cell replication process²; and (4) detection, where DNA strands (short tandem repeats, or “STRs”) are analyzed by way of a genetic analyzer software program using electrophoresis. The result is shown on a computer screen as peaks and valleys, where the peaks are assigned numbers corresponding to the length of the DNA at that location.

A typical DNA sample contains two numbers per location (one number contributed from each parent). If a DNA sample shows one or two numbers at specific loci, that would indicate the

² In *United States v. Trala*, 162 F. Supp. 2d 336 (D. Del. 2001), the court explained this step of the process:

By using this [PCR] process, a lab can produce a substantial number of specific, targeted segments of DNA which can then be typed and compared. PCR allows the laboratory to amplify only those specific DNA regions which exhibit genetic variations within the population, allowing for DNA typing. Moreover, the PCR process enables the analysis of very tiny amounts of DNA. PCR also permits the analysis of old and/or degraded DNA samples.

Id. at 341.

sample came from a single source. If a location has more than two numbers, that would indicate a “mixed” profile—that DNA from more than one person was found on the item. The analyst then compares the DNA profile from a known sample with the DNA profile generated from the evidence samples to determine: (a) whether there is a match; (b) whether there is an “inclusion”—meaning that a particular person cannot be excluded as a source of DNA from the evidence sample; (c) whether there is an exclusion—meaning, that the person’s DNA is inconsistent with the DNA sample; or (d) whether there is an “inconclusive” result, which means that the quality of the DNA profile is not reliable enough to determine inclusion or exclusion. Roy stated that, in order to conclude there is a match, not all of the numbers at all of the sites have to match. Viewing the profile as a whole, the greater the number of sites that match, the stronger the statistical weight of that match and the stronger the evidence.

Once a match is determined, the analyst performs a statistical analysis to calculate the probability that an unrelated person chosen at random from the general population would have the same DNA profile as found on the sample. *See Trala*, 162 F. Supp. 2d at 343 (“Once two DNA samples (*i.e.*, what was found on the evidence and the defendant’s DNA) are typed at a number of STR loci and are found to be sufficiently similar such that they could have originated from the same source, the analyst must determine the significance of the comparison. In other words, the analyst must determine how common or rare the particular DNA profile is based on population frequency data. The analyst does this by calculating the profile frequency.”). This analysis uses population studies conducted by the FBI. *See id.* at 344 (explaining that the FBI has generated a series of databases which are used to approximate the actual frequencies of DNA profiles in various population groups).

C. Application

Roy conducted the DNA analysis in this case and generated a report (“Certificate of Analysis”), which was admitted into evidence as Exhibit 1, with its accompanying Table, entitled “Analysis of Short Tandem Repeat Loci,” admitted as Exhibit 2. She stated that she received cheek swabs from Elvin Wrensford (item 35) and Craig Muller (item 42), which were the “known samples” against which the evidentiary items—a red, green and gold cloth with a “Lion of Judah” drawing; swabs from a Smith & Wesson 9 mm pistol; a blue bandana with a white design; and a black stocking cap—were compared. (Exs. 1, 2; Certificate of Analysis, Dkt. No. 52-1). She processed the known samples and the evidentiary items by following the four steps outlined above, and developed profiles for all of them. The results were included in Exhibit 2.

Roy tested the Lion of Judah drawing with a Minifiler testing kit, which tests eight loci. The Minifiler kit, developed after 9/11 to test degraded DNA samples, is designed to work best with a small amount of DNA, which was the case with the Lion of Judah drawing. Four of the loci on the Lion of Judah drawing showed DNA peaks “below [the] detection threshold that do not meet reporting criteria.” (Dkt. No. 52-1 at 7). Roy’s conclusion was that “[n]o inclusionary or exclusionary statements can be made regarding Elvin Wrensford (item 35) and Craig Muller (item 42) as contributors to the DNA profile obtained from this item.” *Id.* at 4.

Roy analyzed the remaining evidentiary items with the standard Identifiler Plus kit, which tests sixteen loci, as there was enough DNA on those items to process them with that kit. She obtained a DNA profile from the swabs taken from the Smith & Wesson 9 mm pistol, compared it to the profile generated from Wrensford’s known sample, and concluded that the DNA on the pistol matched Wrensford’s DNA profile. She pointed out how the numbers from

Wrensford's known sample in Ex. 2 matched the DNA taken from the pistol at every location (including peaks below the detection threshold that did not meet reporting criteria).

Roy stated that she did not know Wrensford's race or ethnic background when she analyzed the samples. She therefore performed her statistical analysis by calculating the chances of a match in relation to three population subgroups: African-American, Caucasian, and Hispanic. The chance of a match in the African-American population was one in every 27 trillion individuals; a match in the Caucasian population would be one in every 45 trillion individuals; and a match in the Hispanic population would be one in every 88 trillion individuals. She used the most "conservative" estimate—the one most beneficial to Wrensford—and concluded that the chances of anyone else on the planet—other than Wrensford—having the same DNA as found on the pistol would be one in every 27 trillion individuals.

In contrast, Craig Muller's DNA profile numbers were consistently missing from the swabs of the pistol sample. Roy concluded that Muller "can be excluded as a contributor to this DNA profile." (Dkt. No. 52-1 at 5).

Roy also concluded that the blue bandana contained a mixed DNA profile and that Wrensford could not be excluded as a contributor. Similarly, Wrensford could not be excluded as a DNA contributor to the black stocking cap. Muller, on the other hand, could be excluded as a DNA contributor to both the bandana and stocking cap. *Id.*

III. DISCUSSION

A. Legal Standard

"Under the Federal Rules of Evidence, a trial judge acts as a 'gatekeeper' to ensure that 'any and all expert testimony or evidence is not only relevant, but also reliable.'" *Pineda v. Ford Motor Co.*, 520 F.3d 237, 243 (3d Cir. 2008) (quoting *Kannankeril v. Terminix Int'l, Inc.*, 128

F.3d 802, 806 (3d Cir. 1997) (citing *Daubert*, 509 U.S. at 589). The Rules of Evidence “embody a strong and undeniable preference for admitting any evidence which has the potential for assisting the trier of fact.” *Kannankeril*, 128 F.3d at 806; *see also* Fed. R. Evid. 401 (defining “relevant evidence,” which is generally admissible, to mean “evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence.”). In that regard, Rule 702, “which governs the admissibility of expert testimony, has a liberal policy of admissibility.” *Kannankeril*, 128 F.3d at 806.

Rule 702 provides:

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, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Fed. R. Evid. 702. The Third Circuit has opined that Rule 702 has “three major requirements: (1) the proffered witness must be an expert, *i.e.*, must be qualified; (2) the expert must testify about matters requiring scientific, technical or specialized knowledge; and (3) the expert’s testimony must assist the trier of fact.” *Pineda*, 520 F.3d at 244 (citing *Kannankeril*, 128 F.3d 806). The Third Circuit’s shorthand for this three-part test that must be satisfied before an expert may testify is: qualification, reliability, and fit. *Schneider ex rel. Estate of Schneider v. Fried*, 320 F.3d 396, 404 (3d Cir. 2003). “The party offering the expert must prove each of these requirements by a preponderance of the evidence.” *Mahmood v. Narciso*, __ F. App’x __, 2013 WL 6610127, at *3 (3d Cir. Dec. 17, 2013) (citing *In re TMI Litig.*, 193 F.3d 613, 663 (3d Cir.

1999)). The “rejection of expert testimony is the exception and not the rule.” Fed. R. Evid. 702 Advisory Committee Notes to 2000 Amendments.

1. Qualification

The qualification requirement mandates “that the witness possess specialized expertise.” *Pineda*, 520 F.3d at 244 (quoting *Schneider*, 320 F.3d at 404). The Third Circuit “ha[s] interpreted Rule 702’s qualification requirement liberally.” *Id.* (citing *Schneider*, 320 F.3d at 404 and *In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717, 741 (3d Cir. 1994)). A “broad range of knowledge, skills, and training qualify an expert.” *In re Paoli*, 35 F.3d at 741. Further, practical experience can be the basis of “specialized knowledge” for purposes of qualifying an individual as an expert. *See Betterbox Commc’ns, Ltd. v. BB Techs., Inc.*, 300 F.3d 325, 327-28 (3d Cir. 2002).

2. Reliability

The Third Circuit has interpreted the reliability requirement “to mean that ‘an expert’s testimony is admissible so long as the process or technique the expert used in formulating the opinion is reliable.’” *Pineda* 520 F.3d at 244 (quoting *Kannankeril*, 128 F.3d at 806). The testimony

“must be based on the methods and procedures of science rather than on subjective belief or unsupported speculation; the expert must have good grounds for his or her belief. In sum, *Daubert* holds that an inquiry into the reliability of scientific evidence under Rule 702 requires a determination as to its scientific validity.”

Schneider, 320 F.3d at 404 (quoting *In re Paoli*, 35 F.3d at 742) (internal quotation marks omitted).

“While a litigant has to make more than a prima facie showing that his expert’s methodology is reliable . . . ‘[t]he evidentiary requirement of reliability is lower than the merits

standard of correctness.’” *Pineda*, 520 F.3d at 247 (quoting *In re Paoli*, 35 F.3d at 744). The Third Circuit has recognized at least eight factors that a court may consider in assessing whether a particular methodology is reliable:

(1) whether a method consists of a testable hypothesis; (2) whether the method has been subject to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique’s operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put.

Id. at 247-48 (citing *In re Paoli*, 35 F.3d at 742 n.8). These factors “are neither exhaustive nor applicable in every case.” *Kannakeril*, 128 F.3d at 806-07. “The District Court has broad discretion in determining the admissibility of evidence, and ‘considerable leeway’ in determining the reliability of particular expert testimony under *Daubert*.” *Simmons v. Ford Motor Co.*, 132 F. App’x 950, 952 (3d Cir. 2005) (quoting *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152-53 (1999)).

“[T]he reliability analysis [required by *Daubert*] applies to all aspects of an expert’s testimony: the methodology, the facts underlying the expert’s opinion, [and] the link between the facts and the conclusion.” *Heller v. Shaw Indus., Inc.*, 167 F.3d 146, 155 (3d Cir. 1999). In *In re Paoli*, the Third Circuit clarified that “if a court finds that an expert has employed a methodology only slightly different from a methodology that the court thinks is clearly reliable, the court should be more likely to accept the altered methodology than if it was evaluating that methodology as an original matter.” *In re Paoli*, 35 F.3d at 745 n.14. A judge should only exclude evidence if the flaw is large enough that the expert lacks “good grounds for his or her conclusions.” *Id.* at 746. Further, the proponent of the evidence does not have to demonstrate that the assessments of the expert are correct—they only have to demonstrate by a preponderance of

the evidence that their opinions are reliable. *Id.* at 744. ““The analysis of the conclusions themselves is for the trier of fact when the expert is subjected to cross-examination.”” *Oddi v. Ford Motor Co.*, 234 F.3d 136, 146 (3d Cir. 2000) (quoting *Kannankeril*, 128 F.3d at 806).

3. Fit

The third requirement under Rule 702—whether the expert testimony would assist the trier of fact—“goes primarily to relevance.” *Daubert*, 509 U.S. at 591. This requirement mandates that

the expert testimony must fit the issues in the case. In other words, the expert’s testimony must be relevant for the purposes of the case and must assist the trier of fact. The Supreme Court explained in *Daubert* that ‘Rule 702’s ‘helpfulness’ standard requires a valid scientific connection to the pertinent inquiry as a precondition to admissibility.’

Schneider, 320 F.3d at 404 (quoting *Daubert*, 509 U.S. at 591-92).

B. Application of *Daubert* Factors

1. Qualifications of Tiffany Roy

Upon inquiry from the Court following Roy’s testimony at the *Daubert* hearing, Defendant Wrensford’s counsel stated that he was unable to identify any challenge to Roy’s qualifications. Based on Roy’s testimony concerning her specialized scientific knowledge, experience, skill and training, described above, and her expertise with the methodology, the Court finds that she is qualified to offer her expert opinion regarding DNA analysis in this case.

2. Reliability

Applying the factors articulated by the Supreme Court in *Daubert* and by the Third Circuit in *Pineda* to the evidence presented at the hearing, the Court finds that the process used by Roy in formulating her opinion is reliable for purposes of assessing the admissibility of the evidence.

a. Whether the Method Consists of a Testable Hypothesis

Roy applied the polymerase chain reaction/short tandem repeat (“PCR/STR”) method of DNA analysis when she tested the evidentiary samples and compared them with Wrensford’s and Muller’s known samples. Defendant Wrensford does not dispute that the PCR/STR methodology at issue has a testable hypothesis, and courts in the Third Circuit have so found. In *United States v. Ewell*, 252 F. Supp. 2d 104 (D.N.J. 2003), *aff’d* *United States v. Adams*, 189 F. App’x 120 (3d Cir. 2006), the court opined:

There is little doubt that [PCR/STR DNA typing] has a testable hypothesis. ‘The hypothesis of PCR/STR DNA typing is that with proper procedures an expert can determine the allelic types of given DNA samples at the . . . core STR loci.’ . . . [T]his hypothesis can be tested by any laboratory with the proper equipment to perform the PCR process.

Id. at 111 (quoting *United States v. Trala*, 162 F. Supp. 2d 336, 346 n.11 (D. Del. 2001), *aff’d* 386 F.3d 536 (3d Cir. 2004), *vacated on other grounds*, *Trala v. United States*, 546 U.S. 1086 (2006)). The Court finds that this factor weighs in favor of admissibility.

b. Whether the Method has been Subjected to Peer Review, and Whether the Method is Generally Accepted

Roy testified that the technology that undergirds DNA analysis is over 20 years old. The first studies were published in 1988 and, since that time, DNA analysis has been assessed in hundreds of peer review articles. Roy’s testimony in this regard is supported by courts in the Third Circuit that have analyzed this *Daubert/Pineda* factor. *See Elwell*, 252 F. Supp. 2d at 113 (finding that “PCR/STR technology has been subject to peer review.”); *Trala*, 162 F. Supp. 2d at 346 (“The PCR/STR typing used in this case has been the subject of numerous published articles.”).

Roy also stated that the PCR/STR four-step DNA typing method that she used was generally accepted “throughout the world.” Numerous courts that have reviewed this *Daubert* factor have reached the same conclusion. *See United States v. Williams*, 2008 WL 5382264, at *15 (C.D. Cal. Dec. 23, 2008) (“Courts have consistently found that PCR/STR testing has not only been extensively peer reviewed, but is also generally accepted in the scientific community.”) (citing cases); *Ewell*, 252 F. Supp. 2d at 111-12 (“[T]he Court notes that the PCR amplification process has received widespread acceptance in the federal and state courts such that its validity as a methodology is virtually beyond reproach.”) (citing cases); *Trala*, 162 F. Supp. 2d at 347 (“At the outset, the court notes that the PCR process of amplifying relative small samples of DNA into an analyzable quantity has received widespread acceptance in courts.”) (citing cases); *see id.* at 348 (“[T]he technique is not only widely accepted in the United States, but is also accepted internationally.”).

Defendant does not challenge the applicability of these *Daubert/Pineda* factors, and the Court finds that both factors weigh in favor of admissibility.³

³ At the hearing, Wrensford did not raise the argument made in his motion papers that it was unclear whether the Identifiler Plus or Minifiler systems were accepted in the scientific community. In any event, courts have accepted both tests for a number of years. *See, e.g., United States v. McCluskey*, 954 F. Supp. 2d 1224, 1260 (D.N.M. 2013) (discussing wide use of Identifiler kit); *People v. Jackson*, 163 Cal. App. 4th 313, 77 Cal. Rptr. 3d 474, 481-82 (2008) (holding Identifiler was “new and improved version” of same methodology as previous DNA kits); *People v. Borden*, 90 A.D.3d 1652, 1653 (N.Y.A.D. 4th Dep’t 2011) (stating that prosecution called a DNA expert who testified that the Minifiler test is simply a more advanced form of PCR/STR testing “which this Court and others have long recognized as having gained general acceptance in the scientific community.”) (citing cases).

c. The Existence and Maintenance of Standards Controlling the Technique's Operation

Roy testified about the strict quality control protocols that are followed by DNA Labs—and the DNA Analysts employed by the labs—at each step of the DNA analysis to ensure the integrity of the evidence and prevent contamination in the testing process. Roy stated that DNA Labs was accredited by Forensic Quality Services (“FQS”), one of two main accrediting agencies for DNA labs in the United States. FQS performs specific audits, inspects the facilities, and inspects case work to insure that everything is being done properly. She added that the fact that DNA Labs is accredited was a formal recognition that it adheres to practices and procedures that are the best practices in the field. DNA Labs is also accredited pursuant to ISO 17025, an international standardization. In addition to the national and international accreditation, with their particular quality control protocols, DNA Labs itself had implemented quality control procedures at all four steps of the DNA analysis that each analyst was required to follow. In doing so, the analyst was required to complete a worksheet at each stage of the process indicating, for example, whether the area was decontaminated per the standard operating procedure, and whether the controls were performed. At the hearing, Roy produced 140 pages of lab notes that she had generated during her DNA analysis in this case.⁴

Roy also testified that, as part of the protocol, her work was peer reviewed by a technical analyst (another DNA Analyst at DNA Labs) who performed an independent analysis of the data generated by the computer program and Roy's conclusions. In addition, the report was reviewed

⁴ During the colloquy with the Court, it became clear that these 140 pages of case notes had not been produced by the Government in discovery. In response to the Court's inquiry about how he wished to proceed, Wrensford's counsel stated that he would not ask the Court to recess while he reviewed the additional evidence, and that he would not rely on the case notes in connection with the *Daubert* Motion.

by an administrative employee to ensure that the report contained no administrative errors. The technical and administrative reviewers' comments were set out in a "Case Review" document.

Roy also stated that DNA Labs controls for contamination once the evidence arrives at the lab. The lab applied two types of controls to every sample to ensure that the process worked properly and that there was no contamination by extraneous DNA (that may come from the analyst, the officer who collected the evidence, or other samples processed in the laboratory). These controls were: (1) positive controls, where a known DNA profile is processed to ensure the chemical reagents and instrumentation being used on the samples are working and being used properly, and the lab is obtaining the result it should obtain; and (2) negative controls which should contain no DNA (blank samples). The same tubes, reagents, and chemicals are added to the blank samples that contain no DNA. If DNA is found, the analyst knows something went wrong. Further, if a sample is found to be contaminated, an investigation would take place to determine how the contamination occurred and to prevent it in the future. The sample would not be used. Roy had no statistics on what percentage of the time contamination was detected at DNA Labs, but she averred that quality control methods were used in this case and no contamination was detected.

The Court finds that the extensive protocols employed by DNA Labs at every phase of the process indicate that the PCR/STR DNA testing procedure has strict quality controls in place that guard against, and is able to detect, contamination. These extensive protocols were followed by Roy to insure the integrity of the analysis and protect against obtaining unreliable—erroneous—results. The Court concludes that the "existence and maintenance of standards controlling the technique's operation" factor weighs in favor of admissibility.

Defendant Wrensford has raised three challenges to the standards factor, none of which alter the Court's conclusion that this factor favors admissibility. First, Wrensford asserts that because there was no documentation concerning the chain of custody of the evidentiary items prior to their arrival at DNA Labs, the process is not reliable. As a preliminary matter, it would appear that the issue of chain of custody *prior* to the arrival of evidence at the DNA lab has no bearing on the factors that govern the admissibility of expert testimony under Rule 702—namely, the qualifications of the expert; the reliability of the process or technique used by the expert; and the relevance of the testimony. Thus, while a potentially legitimate argument as it may pertain to other aspects of the case, its assertion here seems misplaced.

In any event, the Third Circuit has “long rejected the proposition that evidence may only be admitted if a ‘complete and exclusive’ chain of custody is established.” *United States v. Rawlins*, 606 F.3d 73, 82 (3d Cir. 2010) (quoting *United States v. DeLarosa*, 450 F.2d 1057, 1068 (3d Cir. 1971)). “[I]n the ordinary case gaps in the chain go to the weight of the evidence, not its admissibility.” *Id.* at 83 (citing cases); *see also United States v. Moore*, 425 F.3d 1061, 1071 (7th Cir. 2005) (rejecting defendant's argument that expert testimony of forensic chemist was unreliable under *Daubert* because the government failed to establish a chain of custody for the drugs the expert analyzed, and holding that testimony was properly admitted because a perfect chain of custody was not a prerequisite to admission and any gaps in the chain were issues of weight, not admissibility); *United States v. Perocier*, 269 F.R.D. 103, 108 (D.P.R. 2009) (“Challenges to the chain of custody of the underlying data on which expert testimony is based go to the weight, not the admissibility, of the testimony”) (citing cases from First and Seventh Circuit Courts of Appeal). Thus, Defendant Wrensford's chain of custody argument fails.

Second, Defendant asserts that while the four or five DNA Analysts at DNA Labs who work together every day test each other's work, that does not suffice under *Daubert* for reliability; rather, there should be independent—blind—testing by an outside source, reproducing the analyst's entire testing process, to ensure reliability. Wrensford's contention that blind testing is required lacks merit.⁵

In *United States v. Beasley*, 102 F.3d 1440 (8th Cir. 1996), the Eighth Circuit rejected the defendant's argument that DNA testing required special procedures, including double blind external tests, to check results of the analysis and to show that proper procedures were being followed. The Court held that this alleged deficiency went to the weight of the DNA evidence, not to its admissibility, and that the defendant failed to show that the lab's alleged deficiencies "so altered the PCR methodology as to make the test results inadmissible." *Id.* at 1448 (citing *In re Paoli*, 916 F.2d at 858). Further, in *United States v. Lowe*, 954 F. Supp. 401 (D. Mass. 1997), the Court ruled that the lack of blind DNA testing was not determinative of admissibility, since the

potential for and significance of contamination, the adequacy of proficiency testing, accreditation, and the significance of whether a laboratory estimates error rates all concern the issue of quality control. Absent evidence demonstrating that the particular quality control procedures followed by the . . . laboratory violated . . . a generally accepted industry requirement, these issues impact the weight of the evidence rather than its admissibility.

Id. at 420; *cf. United States v. John*, 597 F.3d 263, 275 (5th Cir. 2010) (rejecting defendant's challenge to reliability of Government's fingerprint evidence because it was not subject to "blind verification," commenting that court has not "located any case law supporting [defendant's]

⁵ The four cases upon which Wrensford relies for the blind testing argument are factually inapposite, as they involve ballistics testing, computer images of pornography, and testing of fabric in a case where there was no expert testimony. In any event, they do not provide legal support for counsel's position. (Dkt. No. 91).

assertion that blind verification is required.”). While other procedures “may very well be more cautious, this is not sufficient to deem the method employed here as unreliable.” *Williams*, 2008 WL 5382264, at *17; *see also Kannankeril*, 128 F.3d at 806 (opining that “*Daubert* does not set up a test of which opinion has the best foundation, but rather whether any particular opinion is based on valid reasoning and reliable methodology.”).

Finally, Defendant infers that because the analysts at DNA Labs work together, their peer review of their co-workers’ analysis is suspect and thus the methodology is unreliable. The Court rejects such a contention. As the court found in *Elwell*, “*Daubert* does not require the Court to assess the credibility of peer-reviewers of a scientific method to determine whether the method is sufficiently reliable to be admissible.” *Elwell*, 252 F. Supp. 2d at 113. Similar to the case here, the *Elwell* Court went on to say that “defendant has offered no evidence of impropriety by any of the peer reviewers and has instead relied on vague assertions of what can only be referred to as friendship between peers involved in forensic DNA science[.]” *Id.* The court found that assertion “insufficient to cast doubt on the reliability of the peer-reviewing process.” *Id.*

In sum, given the methodology followed here—replete with extensive quality control standards—and the fact that Defendant does not make any specific allegations of improper procedures applied in the testing such that the methodology itself was “skewed,” the Court finds that the standards factor weighs in favor of admissibility.

d. The Relationship of the Technique to Methods which have been Established to be Reliable

Defendant did not challenge this prong of the *Daubert* reliability test. Other courts assessing the PCR/STR method have found that “[b]ecause the PCR/STR method of typing is related to established reliable methods,” that fact weighs in favor of finding reliability within the

meaning of *Daubert. Trala*, 162 F. Supp. 2d at 348; *see also Elwell*, 252 F. Supp. 2d at 115. The Court finds that this factor weighs in favor of admissibility..

e. The Qualifications of the Expert Witness Testifying based on the Methodology

As noted above, and for the reasons previously stated, the Court has concluded that Roy's knowledge, experience, skill and training qualify her to testify as an expert using the methodology described for the DNA analysis. Accordingly, this factor weighs in favor of admissibility.

f. Non-Judicial Uses of the Method

Roy asserted that the DNA analysis used here has been put to a number of non-judicial uses, with applications in medicine (genetic screening for diseases), reproductive treatments, and non-criminal paternity tests. In *Trala*, the government also noted that PCR amplification was used in agriculture, and STRs have been used in paternity testing, tumor identification, and in the identification of human remains from mass disasters. *Trala*, 162 F. Supp. 2d at 348. This factor also weighs in favor of admissibility.

g. The Known or Potential Rate of Error

When asked whether there was an error rate in the DNA procedure she used, Roy responded that in the field of forensic DNA, there is no defined error rate because there is no agreement about what constitutes an error. Defense counsel contended that the fact that there is no known rate of error because of competing views about what represents an error favors the defense, and that the Court should weigh Roy's explanation and make a finding on this factor.

The fact that Roy could not provide an error rate would, in isolation, weigh against admissibility. However, in *Elwell*, the court placed the absence of an error rate in the context of its assessment of the DNA testing methodology, and found that due to the reliability of the

procedure, the lack of an error rate did not cause the evidence to be inadmissible. The defendant argued that because the government did not offer evidence as to how often the FBI laboratory reached the wrong result due to human errors, instrument errors, and failure to follow the protocol, the government did not satisfy the *Daubert* error rate criterion. The court found that “[l]aboratory error may only form the basis for exclusion of an expert opinion if ‘a reliable methodology was so altered . . . as to skew the methodology itself.’” *Elwell*, 252 F. Supp. 2d at 113 (quoting *In re Paoli R.R. Yard PCB Litig.*, 916 F.2d 829, 858 (3d Cir. 1990)). The court pointed out that the defendant’s argument was not based on evidence of actual errors by the laboratory, but instead simply challenged the government’s failure to quantify the rate of laboratory error. According to the court, that argument exhibited

a fundamental misunderstanding of the principles of *Daubert*. The Court’s concern under Rule 702 and *Daubert* is the reliability of the scientific methodology at issue, not the reliability of the laboratory performing the test. Put simply, ‘[a] laboratory’s error rate is a measure of its past proficiency and is of little value in determining whether a test has methodological flaws.’ What the defendant has sought to do here is challenge the proficiency of the tester rather than the reliability of the test. Such challenges go to the weight of the evidence, not its admissibility.

Id. at 114 (internal quotation marks and citation omitted).

Here, too, Wrensford does not allege that the PCR/STR methodology is inherently flawed. Instead, he hypothesizes that Roy may have made errors in her DNA analysis—a matter that, pursuant to *Elwell*, falls within the realm of cross-examination at trial. Also given the strict protocols followed by DNA Labs and its analysts to ensure the reliability of the results, the lack of a specific error rate does not weigh against admissibility.

h. Summary

When the Court considers the reliability of the PCR/STR methodology as a whole, including the fact that virtually all of the *Daubert/Pineda* factors here weigh in favor of

admissibility, it finds that the inability of Roy to provide a specific error rate does not tip the scales against admissibility. Vested as it is with “broad discretion in determining the admissibility of evidence, and ‘considerable leeway’ in determining the reliability of particular expert testimony under *Daubert*,” *Simmons*, 132 F. App’x at 952, the Court finds that the general acceptance of the methodology and, in particular, the existence of strict quality control protocols employed by DNA Labs and its analysts at every step of the DNA analysis, ensure the reliability of the methodology. See *United States v. Parrish*, 83 F.3d 430 (9th Cir. 1996) (Table) (where defendant argued that court could not properly evaluate the reliability of the DNA evidence because prosecution did not produce data regarding lab error rates, the court found that this information was not strictly required in order to meet the conditions for admitting scientific evidence since the list of factors the trial court should consider is nonexclusive and may be tailored for each case, and there was other indicia of reliability).

Moreover, as the Third Circuit stated in *United States v. Grinnage*, 486 F. App’x 325 (3d Cir. 2012), “[t]his Court (along with several other state and federal courts) has previously upheld the admission of DNA evidence produced through the PCR/STR method.” *Id.* at 329 (citing cases); see also *United States v. McCluskey*, 2013 WL 3766686, at *8, *16 (D.N.M. June 20, 2013) (opining that “a number of courts have held that judicial notice of the reliability of PCR/STR DNA analysis can be taken” and “[b]ased on overwhelming scientific and forensic acceptance, as well as acceptance by the vast majority of courts, this Court concludes that the PCR/STR method of DNA typing is reliable and admissible under Rule 702 and *Daubert*”) (citing, *inter alia*, *Beasley*, 102 F.3d at 1448 and *Trala*, 162 F. Supp. 2d at 347-48).

Based on the testimony presented, the Court finds that the PCR/STR method of DNA analysis used by Roy is reliable under *Daubert/Pineda* and Rule 702.

3. Fit: Expert's Testimony Must Assist Trier of Fact

The third requirement of the Rule 702 test mandates that “the expert’s testimony must be relevant for the purposes of the case and must assist the trier of fact.” *Schneider*, 320 F.3d at 404. The Government contends that “Wrensford’s DNA appeared on a weapon recovered by the police in close proximity to where he was apprehended within one hour after the shooting.” (Dkt. No. 70 at 1). The DNA analysis conducted by Roy and regarding which the Government seeks to offer her testimony is therefore relevant to the issues at the heart of this case—namely, the link between the alleged murder weapon and Defendant Wrensford.

4. Summary

The Government has shown that Roy is qualified as an expert by her knowledge, experience, training, and education; that the PCR/STR method of DNA analysis used here is reliable; and that Roy’s testimony will be relevant for the purposes of this case. The Court therefore finds that the expert testimony concerning DNA evidence meets the requirements of Rule 702, and will deny Defendant Wrensford’s *Daubert* Motion.

IV. CONCLUSION

For the reasons set forth above, the Court denies Defendant Wrensford’s *Daubert* Motion to the extent he seeks to exclude the testimony of DNA expert Tiffany A. Roy. An appropriate order accompanies this Memorandum Opinion.

Date: March 25, 2014

_____/s/_____
WILMA A. LEWIS
Chief Judge