UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF FLORIDA
CASE NO. 21-20323-CR-SEITZ

UNITED STATES OF AMERICA

v.

REGINAL MILLER,

Defendant.
_____/

ORDER ON DEFENDANT'S *DAUBERT* MOTIONS

This matter is before the Court on Defendant Reginal Miller's motions to exclude Government-proffered experts based on Federal Rule of Evidence 702 and *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993) [DE 32 at 10-25; 51]. The Government opposes the motions [DE 22, 37, 45[1], 48, 50, 58]. The Court has considered the filings, the record, the applicable law, counsels' argument, and the *Daubert* testimony at the pretrial hearings [DE 47, 60]. Based on the foregoing, the Court finds that the proffered experts are permitted to testify, subject to limitations at trial on terms ballistics experts may use and prior Court review of hypotheticals posed to the DNA expert. Thus, for the reasons stated below, the motions are GRANTED, IN PART, AND DENIED, IN PART.

I. Background

On April 14, 2019, a Miami Dade Police Department ("MDPD") officer stopped a car near an apartment complex where gunfire had been recently reported.

[1] Docket entries 43 and 45 are identical except for the signature block.

When the vehicle stopped, four men fled in opposite directions. The Government contends that two of the men were Drakar Smith and Jakari Wilson, who it further believes know Defendant Miller. A search of the car and nearby area uncovered certain items, including three firearms – a M92 AK pistol, a Mini Draco AK pistol (both assault weapons), and a Glock 19 9mm Gen 4 pistol (semiautomatic weapon, the "Glock").

The Government's proffered forensic analysis connects Smith and Wilson to some of the items. Specifically, it connects them by fingerprints to the vehicle, by DNA to clothing, by gunshot residue to primer residue particles, and connects casings from the apartment complex shooting to the M92 AK pistol.

The proffered analysis also connects Miller to the Glock. Specifically, it connects him by DNA to the magazine of the Glock, and connects casings from the Glock to the apartment complex shooting, as well as to two prior investigated shootings that occurred on March 30 and April 2, 2019. As a previously convicted felon, Miller was charged with one count of felon in possession of a firearm (for the Glock) under 18 U.S.C. § 922(g)(1), along with a forfeiture allegation. His trial starts April 25, 2022.

II. *Daubert* Hearings on Government's Experts

Daubert hearings were held for the Government's ballistics identification experts on March 8, 2022 (with respect to Arthur Andrade), and March 22, 2022 (with respect to Tyler Brown and Angela Garvin). All three are criminalists with the Miami Dade County Crime Laboratory. Mr. Andrade's testimony was the most

detailed, as he attempted to describe the field of firearm/casings identification in general, the basics of the examination process, including use of a national online database that ties casings to other investigations, the Association of Firearms and Toolmark Examiners ("AFTE") protocols, and AFTE accreditation, which Miami Dade County Laboratory maintains, among other laboratories and testing facilities across the country. He acknowledged the PCAST Report's criticisms (described below) and discussed studies conducted and published to respond to them, which were provided to the Court. He also described the ongoing proficiency testing required for criminalists at the Laboratory.

All three ballistics experts testified as to their respective education backgrounds, experience, ongoing proficiency testing and scores, the specific evidence items each tested, the steps each conducted, the analysis and related results, and the accompanying reports, which were provided to the Court. Mr. Andrade testified to a connection between three of the 9mm casings found at the scene of the apartment complex shooting and the Glock. Mr. Brown offered similar testimony that made a connection between the Glock and nine casings from a March 30, 2019, investigated shooting in Miami, and Ms. Brown testified the same with respect to a shooting on April 2, 2019. They testified to following the same set of protocols in their work.

On March 22, 2022, the Court also heard *Daubert* testimony from the Government's DNA expert, Adriana Kristaly. She is a criminalist with the MDPD, Forensic Services Bureau, who analyzes and interprets DNA evidence [DE 22 at 2].

In addition to conclusions relating to non-parties Smith and Wilson, she testified that a particular DNA sample taken from the Glock's magazine matches Defendant's DNA profile. She described her training and experience, along with the methodology generally governing DNA analysis and as she applied it in this case. She also testified, generally and as applied in this case, about DNA transference, i.e. how DNA gets from one place to another, and the factors of DNA degradation, i.e. reasons why the quality of a transferred DNA sample might deteriorate.

She testified consistent with her report, a copy of which was provided to the Court. On cross-examination, she repeatedly stated that, while time is a factor affecting degradation, it cannot be viewed "in a vacuum," i.e. without considering the other major factors that contribute to sample degradation, such as humidity, mold, UV exposure, chemical exposure, and heat. Relatedly, she acknowledged that she could not opine as to how DNA was left on the Glock's magazine or when transference occurred.

III. Legal Standard

Courts have a "gatekeeping" function to ensure proffered expert testimony is both relevant and reliable. *Daubert*, 509 U.S. at 597. Specifically, a witness qualified as an expert may testify if "(a) the expert's...specialized knowledge will help the trier of fact to understand the evidence or 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." Fed. R. Evid. 702.

Thus, a court must determine whether proffered expert testimony has a reliable foundation. *Rink v. Cheminova, Inc.*, 400 F.3d 1286, 1291 (11th Cir. 2005); *Daubert*, 509 U.S. at 589. The Court must also ensure that the expert appropriately applied the relevant methods of analysis in the particular case. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 141, 156-58 (1999). The court, however, does not determine the proffered evidence's persuasiveness. *Quiet Technology DC-8, Inc. v. Hurel-Dubois UK Ltd.*, 326 F.3d 1333, 1341 (11th Cir. 2003). An expert's opinion is best challenged by "vigorous" cross-examination and contrary evidence. *Id.* (citation omitted). Exclusion of expert testimony is the "exception rather than the rule." *See* Fed. R. Evid. 702 advisory committee's note to 2000 amendment (the "2000 Amendment Note").

Under *Daubert*, courts engage in a three-pronged inquiry to qualify experts, specifically, whether

> (1) the expert is qualified to testify regarding the subject of the testimony [the "Qualifications Prong"]; (2) the expert's methodology "is sufficiently reliable as determined by the sort of inquiry mandated in *Daubert*" [the "Methodology Prong"]; and (3) the expert's testimony will assist the trier of fact in understanding the evidence or determining a fact at issue [the "Assistance Prong"].

Chapman v. Procter & Gamble Distrib., LLC, 766 F.3d 1296, 1304 (11th Cir. 2014) (quoting *United States v. Frazier*, 387 F.3d 1244, 1260 (11th Cir. 2004) (en banc)). The proffering party has the burden to satisfy these three elements by a preponderance of the evidence. *Chapman*, 766 F.3d at 1304 (citation omitted).

With the Methodology Prong, a non-exhaustive list of factors aids the court. It includes

> (1) whether the expert's methodology has been tested or is capable of being tested; (2) whether the theory or technique used by the expert has been subjected to peer review and publication; (3) whether there is a known or potential error rate of the methodology; and (4) whether the technique has been generally accepted in the relevant scientific community.

Id. at 1305 (citation omitted); *Daubert*, 509 U.S. at 593-94. A court enjoys broad discretion in deciding *Daubert* issues. *Kumho Tire*, 526 U.S. at 152.

IV. Proffered Ballistics Identification Experts[2]

A. Defendant's Position

In his Motion in Limine [DE 32], Defendant contends that the proffered ballistics identification testimony fails to meet Rule 702 and the *Daubert* standards.[3] His principal argument challenges the AFTE theory of "sufficient agreement" ballistics examiners use to match bullets and casings to a specific firearm.[4] Defendant argues that the theory is invalid or unreliable, and that the related methods were not properly applied in this case. Defendant roots his challenge in *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods* (the "PCAST Report"), which is a federal government report that challenged the validity of the ballistics field by noting that only one sufficiently rigorous study (called a "black-box" study), as of the PCAST Report's

[2] Defendant initially challenged proffered ballistics expert, Arthur Andrade [DE 32 at 10-25], but moved *ore tenus* to exclude two others, Tyler Brown and Angela Garvin, on similar bases. Likewise, the Government applied its arguments to Mr. Brown and Ms. Garvin as well. As a result, this Order applies to all three ballistics identification experts.

[3] Regardless whether an expert ties a casing to a firearm, the Motion also challenges more broadly the relevancy of that connection to the charged offense, which is discussed below.

[4] For a summary of the ballistics identification field and AFTE's theory of "sufficient agreement," *see United States v. Harris*, 502 F. Supp. 3d 28, 34-35 (D.D.C. 2020), and *United States v. Sebbern*, No. 10 Cr. 87(SLT), 2012 WL 5989813, at *4-*5 (E.D.N.Y. Nov. 30, 2012), which are consistent with Mr. Andrade's *Daubert* hearing testimony.

date, attempted to validate the field, with a false positive rate potentially as high as 1 in 46 cases. President's Council of Advisors on Sci. and Tech., Exec. Off. of the President (2016). Defendant also describes an earlier 2009 congressional report that challenged the AFTE sufficient agreement theory.

Defendant asserts four additional objections to the field. First, he argues that the field's studies are not generally subject to peer review. Next, he emphasizes the PCAST Report's conclusion that proficiency tests of examiners need to be examined and improved. Third, he reiterates the Report's claim of the subjective nature of the examination process. Finally, he contends that the field's standards do not require any minimum number of similarities between two items to satisfy sufficient agreement, leaving examiners influenced by biases and "his or her own internal compass" [DE 32 at 20]. The Motion observes (prior to the *Daubert* hearings) that the Government had provided no evidence as to how the experts made comparisons and reached conclusions.

Alternatively, Defendant asks the Court to limit any testimony regarding certainty of a match between casings and the Glock, and the Government to admit to shortcomings of the firearms analysis field. Defendant offers case law examples of certainty limitations and requests that experts be required to identify error rates of any black-box study [DE 32 at 23-24].

B. Government's Position

The Government, however, argues that the ballistics experts' proffered testimony satisfies *Daubert*. Specifically, it contends that ballistics identification is

a reliable field, and the experts appropriately applied the AFTE principles to their analyses. The Government points out that the AFTE methodology and protocols have never been categorically deemed unreliable by any federal court, as Defendant urges. In contrast, the Government maintains courts have found AFTE's protocols to be testable, reproducible, and subject to peer-review in industry journals, as well as to have low error rates. The Government acknowledges that some federal courts have more recently limited expert testimony in this field, but that preclusion from opining as to a likely match of a casing to a specific firearm is unprecedented. The Government adds that shortcomings should be fodder for cross-examination. Finally, the Government also acknowledges the subjective nature of determinations but notes that this quality does not preclude expert testimony.

C. Basis of Court's Decision

1. The PCAST Report and the Methodology Prong

The Court applies *Frazier*'s three-pronged inquiry. *See* 387 F.3d at 1260. Defendant principally challenges the ballistics experts on the Methodology Prong, i.e. whether AFTE's protocols and procedures form a reliable field. As explained below, the Court finds that this prong is satisfied.

The Court begins by considering the PCAST Report. Initially, it gave the Court pause because it cast a shadow on the reliability of the ballistics identification field. It found that an insufficient number of studies (namely, one) had established the field's foundational validity. It challenged AFTE's theory of sufficient agreement as being subjective and "circular." PCAST Report at 104. It

called for more black-box studies, as well as better examiner proficiency testing, and expressed optimism that improving technologies would make the field more objective and less subjective in the future. *Id.* at 11-12.

Defendant, however, appears to overstate the PCAST Report's conclusions. The Report falls short of stating that the field of ballistics identification is invalid or unreliable. Instead, it states that the reliability of the field had not yet been established to the PCAST Report's standards. *See* PCAST Report at 112. For the one black-box study cited by the PCAST Report, the false positive rate was potentially as high as 1 in 46 cases. The Report, however, acknowledged that 20 of the 22 false positives in that black-box study were made by only five examiners (out of the 218 examiners involved in the study), suggesting that individual examiner proficiency training could play a key role in lowering error rate. *See* PCAST Report at 110.

Moreover, other studies have been conducted since 2016. For example, in *Harris*, the defendant raised a similar challenge after a comparable ballistics analysis. 502 F. Supp. 3d at 34-36. The court observed that "recent advancements in the field in the four years since the PCAST Report" addressed many of the concerns it raised. *Id.* at 33, 35. In particular, three studies post-PCAST Report met the black-box rigor. *Id.* at 38.[5] The court concluded that, "even under the PCAST's stringent black-box only criteria, firearm and toolmark identification can be tested and reasonably assessed for reliability." *Id.* The Court allowed testimony

[5] The Government provided the Court copies of materials discussed in *Harris*. *See* Docket Entry 48.

consistent with certainty guidelines established by the U.S. Department of Justice's Uniform Language for Testimony of Reports for the Forensic Firearms Toolmarks Discipline Pattern Machine Examination ("DOJ ULTR"). *Id.* at 33, 44-45.

Applying the non-exhaustive list of factors to assess a methodology's reliability, the Court, first, finds the AFTE protocols testable. *See Chapman*, 766 F.3d at 1305; *Daubert*, 509 U.S. at 593-94. Described by Andrade in his testimony and report, the AFTE protocols appear reproducible by different examiners while yielding consistent results that can be challenged by another party. The experts' conclusions can be "challenged in some objective sense" and are not "instead simply a subjective, conclusory approach that cannot be reasonably assessed for reliability." 2000 Amendment Note. Specific observations supporting an expert's opinion can be thoroughly critiqued on cross-examination. *See Harris*, 502 F. Supp. 3d. at 37.

The subjective element inherent in this field does not preclude reliability. As Ms. Garvin illustrated in her testimony, a doctor's review of an unquantifiable x-ray is subjective, and yet a reliable method underlies the doctor's conclusions, which can be reliably reproduced and objectively challenged by a disagreeing doctor. Similarly, Defendant unreasonably overstates ballistics experts as led by an "internal compass."

Next, the Court considers the possible error rate, particularly for false positives, which could expose defendants to unjust conviction. *See Chapman*, 766 F.3d at 1305. The rate provided by the one PCAST Report black-box study was about 2%, with the caveat of concentrated false positives among a small group of

examiners, explained above. Post-PCAST studies reveal error rates significantly lower. *See Harris*, 502 F. Supp. 3d at 39 (citing two studies with a zero percent rate, and one with a .433% false positive rate). The Court finds that the Government has sufficiently identified an error rate (or range thereof) for *Daubert* purposes, which Defendant can challenge.

The Court also weighs whether sufficient controls govern the application of AFTE's protocols. This factor finds the weakest support. Neither party denies that "sufficient agreement" governs AFTE analysis, and that AFTE carefully defines that term, but no one appears able to further elucidate this term. The Government has not detailed it in expanded, quantifiable components. None of the testifying experts were able to identify, for example, a specific number of matching components in a comparison, or to quantify the sufficiency of that match, that would result in sufficient agreement. Thus, this factor does not favor admissibility.

A couple factors remain. *See Chapman*, 766 F.3d at 1305. First, the AFTE methodology has been peer-reviewed. The AFTE methods have been published in non-AFTE peer-reviewed journals. *See* Docket Entry 48. Second, the Government established that the AFTE methods are widely accepted in the relevant community.

The assessed factors provide a sufficient basis for the Court's determination. Aside from the vagaries of sufficient agreement, the balance of factors weigh in favor of finding a reliable basis for the experts' opinions that satisfy *Daubert*'s Methodology Prong. Defendant's principal challenge was based on the PCAST Report and the Government's unmet burden, prior to the *Daubert* hearings.

Following the hearings, however, which included submitted reports and additional argument of counsel, the Court finds the burden met.

2. The Qualifications and Assistance Prongs

The other two *Daubert* prongs are satisfied. *See Frazier*, 387 F.3d at 1260. Defendant is not challenging any of the experts on the Qualifications Prong *per se*. Each of their respective backgrounds, training, testing, and experience demonstrate sufficient qualifications. Similarly, Defendant does not challenge proficiency; except for one unrelated proficiency test for Ms. Garvin, the experts testified to scoring exceptionally well in their proficiency exams.

In addition, except for the challenges to methodology, discussed above, and general relevancy, Defendant does not claim that the testimony fails to assist the jury in connecting a given casing to the Glock. The Court will address the general relevancy argument more fully in an order to follow, but suffice it to say for these purposes that proffered evidence tying the casings to the firearm, and the firearm to Defendant (by the Government's DNA expert, discussed below), are relevant to guilt as a felon in possession. Thus, the Court finds these two prongs satisfied. Defendant's elixir shall be in the form of "[v]igorous cross-examination [and] presentation of contrary evidence." *Daubert*, 509 U.S. at 596.

3. Limiting Language for Experts' Testimony

Ballistics examinations involve an examiner's subjective determination, due in part to AFTE's sufficient agreement standard. *See Sebbern*, 2012 WL 5989813, at *5 (acknowledging the same). But such precision is not required for a

methodology to be deemed reliable. *See id.* at *6-*7 (reviewing cases with similar arguments and noting testimony was allowed with limitations). At Mr. Andrade's *Daubert* hearing, the Government suggested that, if ballistics experts' opinions were to be limited, that they be done so consistent with *Harris*, which used the DOJ ULTR. 502 F. Supp. 3d at 44. The Court finds limiting expert testimony language consistent with the DOJ ULTR appropriate in this case as well.[6]

Accordingly, the ballistics identification experts shall tailor their respective opinions as follows:

- The expert shall not assert that two toolmarks originated from the same source to the exclusion of all other sources or use the word "match" in relation thereto. Similarly, the expert shall not state that examination conclusions are infallible or subject to a zero error rate.
- The expert shall not assign a statistical or numerical degree of probability.
- The expert may cite the number of examinations conducted in his or her career for purposes of establishing, defending, or describing his or qualifications. The expert, however, may not note such number in the context of a proffered conclusion, i.e. for the purpose of offering a direct measure of the certainty of the conclusion.

[6] The Government submitted a copy of the DOJ ULTR. *See* Docket Entry 48-1.

- The expert shall not use phrases that suggest reasonable levels of certainty, such as "reasonable degree of scientific certainty" or "reasonable scientific certainty."

At the time of each expert's opinion during trial but before such opinion is rendered, the Court will meet with the parties out of the jury's presence to confirm their understanding of this Order and address any details or outstanding related issues that have arisen over the course of trial. If the witness is unable to comply with these limitations, his or her testimony will be stricken.

V. Proffered DNA Expert

A. Defendant's Position

Defendant's Motion to Exclude [DE 51] challenges a specific component of Ms. Kristaly's expected testimony, namely, any opinion regarding the timing and way Defendant's alleged DNA was deposited on the Glock magazine. Defendant disputes that its quality and quantity imply that he would have been last to use the Glock, soon before its seizure. He complains that this expected opinion was not included in Ms. Kristaly's expert report or otherwise suggested by the Government until March 8, 2022 – the day of the Second Pretrial Conference.

Additionally, Defendant argues that the Government has provided no theory of scientific evidence supporting this testimony, or that reliable methods were applied in this case, as required by Rule 702 and *Daubert*. In contrast, Defendant adds that Dr. Peter Gill, a leading pioneer in DNA analysis, concluded in 2014 that an examiner cannot possibly conclude when a DNA transference occurred.

Summarizing conclusions from Dr. Gill's book, *Misleading DNA Evidence: Reasons for Miscarriages of Justice*, the Defendant asserts as a "widely accepted tenant" that "the presence of DNA does not say when or how it got there" [DE 51 at 5].

B. Government's Position

In the Government's Response [DE 58], it cites cases where DNA experts testified about the key issues here –transference and degradation. The Government calls such testimony "routine" [DE 58 at 11]. Directly addressing Defendant's concern, the Government states that Ms. Kristaly "is *not* going to say how, exactly, the Defendant's DNA got on the Glock 19, nor when, exactly, that happened" [DE 58 at 2, emphasis in original].

The Government contends that Defendant "conflates the anticipated expert testimony with what the government intends to [argue to] the jury," namely that the Defendant possessed the Glock on or about the date charged [DE 58 at 1-2, 3-4]. The Government intends to pose hypotheticals to the DNA expert, asking her to apply her expertise to the facts here. The Government will ask the jury to find that it is "unreasonable to conclude that someone other than the Defendant possessed the gun so extensively, such as by reloading the [Glock's] magazine" [DE 58 at 12]. Finally, the Government acknowledges alternative DNA transference scenarios, but argues such exploration is fodder for cross-examination and rebuttal testimony.

C. Basis of Court's Decision

After hearing Ms. Kristaly's testimony and the parties' argument, the Court finds no clear *Daubert* challenge. Defendant does not object to Ms. Kristaly's

qualifications, methodology, or the relevance of her testimony to helping determine the gun's possession, beyond the timing issue. *See Frazier*, 387 F.3d at 1260 (describing the three-prong inquiry). The Government has carried its burden and persuaded the Court that none of *Frazier*'s three prongs are at issue.

Moreover, while Defendant objects to what it believed might be a previously undisclosed opinion of the expert, based on a colloquy at the *Daubert* hearing on March 8, 2022, Ms. Kristaly's testimony clarified that she will not opine along the lines Defendant fears, i.e. how and when the DNA at issue was transferred. Therefore, in that respect, Defendant's Motion to Exclude has been mooted.

The heart of Defendant's Motion to Exclude lies in a fear about the inferences the Government will ask the jury to draw, based on Ms. Kristaly's opinion. As the Government points out, and Defendant would likely agree, hypotheticals and reasonable inferences have long been the bread and butter of parties proffering expert testimony. In this case, as the saying goes, the devil lies in the details. In other words, the specific content of the posed hypotheticals will be what determines whether the Government asks for an opinion or inference reasonably based on the expert's testimony and admitted evidence, or whether the Government urges an impermissible, unsupported conclusion.

Notably, none of the cases cited in the Government's Response address what counsel is permitted to argue at trial in light of an expert's testimony in that case. And at this stage, the Court and the parties have yet to see what testimony and evidence is admitted. Therefore, as the Court stated at the *Daubert* hearing, at the

appropriate time during trial, the Government shall provide in writing for the Defendant's review and the Court's approval the hypotheticals the Government intends to pose to Ms. Kristaly.

The Government (and Defendant) are reminded that opening statements at a trial are just that: a statement of the facts expected to be admitted at trial. The Government shall make no argument in its opening statement, which includes any concerning the believed manner or timing in which DNA was deposited on the Glock's magazine. Therefore, it is

ORDERED THAT

1. Defendant Reginal Miller's Motion in Limine [DE 32] is partially GRANTED, IN PART, AND DENIED, IN PART, as described in this Order. A separate order will rule upon the balance of the Motion in Limine.
2. Defendant Reginal Miller's Motion to Exclude Government's Newly Discovered Theory Regarding DNA Pursuant to *Daubert* [DE 51] is GRANTED, IN PART, AND DENIED, IN PART, as described in this Order.

DONE AND ORDERED in Miami, Florida, this 8th day of April, 2022.

Patricia A. Seitz

PATRICIA A. SEITZ
UNITED STATES SENIOR DISTRICT JUDGE