IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND

UNITED STATES OF AMERICA	:	
	:	
v.		**Criminal Case No. CCB-08-0149**
	:	
BRIAN KEITH ROSE	:	

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The United States of America, by and through its counsel Rod J. Rosenstein, United States Attorney for the District of Maryland, and John F. Purcell, Jr., Assistant United States Attorney for the District of Maryland, respectfully submits this supplemental motion *in limine* to allow evidence of latent fingerprint identification of the defendant, Brian Keith Rose, without a *Daubert* hearing.

I. PROCEDURAL BACKGROUND

The murder of Warren Tee Fleming (DOB 9/2/74) occurred at approximately 10:30 a.m. on January 5, 2006, when Mr. Fleming was shot during an attempted carjacking of his 2001 Mercedes sedan in the parking lot of Security Square Mall, in western Baltimore County, Maryland. At the time of his death, Mr. Fleming owned a Cingular phone store at Security Square Mall. Mr. Fleming was shot once, in the head, at close range with a .22

semi-automatic pistol. On January 18, 2006, the defendant, Brian Rose ("Rose") was arrested by state authorities and charged with the murder of Mr. Fleming.

In December 2007, a judge for the Circuit Court for Baltimore County granted Rose's motion to exclude evidence of identification of Rose's latent fingerprints under the *Frye* "general acceptance" test applicable to the admission of expert testimony in Maryland courts. In February 2008, the court denied the state's motion for reconsideration of that order of exclusion.[1]

A federal grand jury returned an indictment of Rose on April 1, 2008. On June 10, 2008, the federal grand jury returned a Superseding Indictment charging Rose with conspiracy to commit carjacking, attempted carjacking resulting in the death of Mr. Fleming on January 5, 2006, an armed carjacking on January 2, 2006, and related firearm offenses. The trial is scheduled to commence on October 13, 2009. The government respectfully requests submits that its motion *in limine* be granted upon review of this supplemental motion.

II. SUPPLEMENTAL FACTUAL SUMMARY

A. The Reliability of the Fingerprint Evidence is Buttressed by Rose's Admissions that He Committed the Carjacking with Jamal Knox and that He was the Source of the Fingerprints Found on the Victim's Mercedes and the Stolen Intrepid

[1]The court has been previously been provided copies of the state court's memorandum, the report of the OIG and the Rose *amicus* brief referred to herein.

The factual summary in the government's motion *in limine* describes the attempted carjacking and murder of Wayne Fleming at the Security Square Mall on January 5, 2006. It may be recalled that Rose, whose fingerprints were on record from prior arrests (including one for the theft of a state police car) was identified by Baltimore County latent print examiners Denise Wallace and Joyce Turner as the source for the latents recovered from the window on the inside driver's door of Mr. Fleming's Mercedes and from the upper exterior frame of the driver's door of the stolen Intrepid. Two latent impressions on the victim's driver's door window were transferred from Rose's left little finger and left ring finger. As noted, the location of Rose's fingerprints on the Mercedes, on the inside window of the driver's door and adjacent to where the victim was sitting when he was shot, place Rose at the scene of the murder and strongly suggest that Rose was the shooter. Rose's right little finger was likewise identified as the source of the latent fingerprint recovered from the exterior of the driver's door of the stolen Intrepid. The location of this print is consistent with where the driver's door would have been "flexed" to allow Rose to enter the Intrepid and pop the ignition. As described herein, Rose was well known by members of his family to have been a car thief since his teen age years.

The presence and location of Rose's fingerprints on both the victim's car and the stolen Intrepid will be critical evidence of Rose's involvement in the murder of Mr. Fleming. As described in the government's original motion, exclusion of the fingerprint

evidence, in conjunction with the facts as to when and from whom the [likely] murder weapon was recovered later on the day of the murder would allow Rose to foist the blame for the murder on Gary Gibson (a/k/a Shoeshine) and Rose's now-deceased cousin, Jamal Knox.

B. Rose Has Admitted His Involvement to Several Individuals

The reliability of the fingerprint identification of Rose has been corroborated by various admissions made by Rose that have been discovered in the course of the federal investigation and were unknown to the state judge. As Rose's counsel have been informed, Rose made highly incriminating statements to several individuals (the identity of whom has been provided to counsel) in which he admitted that he was involved in the carjacking/murder and that his fingerprints were indeed recovered from the Intrepid and Mercedes. These admissions are *in addition to* various statements that Rose made to individuals he was in jail with pending the state trial the source and substance of which were disclosed to Rose in the state proceedings. The incriminating statements discovered during the federal investigation were made to individuals within the circle of Rose's family and friends. These statements are summarized below, and while the source of each will be identified in a separate letter to counsel, they are protected for the purposes of this public filing.

1. Witness A

Witness A testified in the grand jury on May 20, 2008. Among other things, this witness testified as to the following statements by Rose:

- the witness knew Rose and that he was a long time car thief, hence his nickname,"Sticky";
- the witness was told by a member of its family that the family member saw Jamal Knox in the stolen Intrepid in on the evening of January 4, 2006. The witness said the car shown on TV matched the Intrepid it in which the witness had seen Knox;
- that Gibson/Shoeshine was an associate of Knox and the Defendant
- Rose told Witness A that " I did part of the (carjacking murder that was on the news) but not all of it;"
- Rose told Witness A on the day of the murder that "stuff went wrong" and that Jamal Knox did the actual shooting;
- Rose stated that the man was shot in the head and had a Mercedes; That he was shot when Rose got out of the car (the Intrepid);
- Rose stated that Gibson and Knox were later arrested with the murder weapon;
- Jamal told Witness A that nobody was talking to Gibson/Shoeshine because he was talking to the police about the gun;
- Rose told Witness A that after the shooting they went to the parking lot of the mall in Owing Mills and caught the subway to Mondawmin (near where Rose lived).

2. Witness B

Witness B testified before the grand jury on June 3, 2008. This witness described the following admissions by Rose :

- Rose said he had touched the top part of the drivers' door of a car and did not take the victim's Mercedes; Rose took the stolen car to Owings Mills, took the subway and left the stolen car in the parking lot; Rose was with his young cousin;

- that victim had a Mercedes;
- Rose's prints were on both cars;
- when Rose told the victim to give him the car, the victim reached for the gun and "it went off" and the man was shot in the head;
- Rose was worried because his cousin was found with the murder weapon;
- that Rose enjoyed stealing cars;
- Rose had been on the run with his baby's mother prior to his arrest;
- Rose owned a maroon maxima with stolen tags.

3. **Witness C**

Witness C described the following statements made by Rose:

- Rose had been a car thief for years (the witness had also seen him in stolen cars)
- Shoeshine (Gibson) was an associate of Rose and his cousin, Jamal Knox;
- the witness saw Gibson (with a gun) in a silver Intrepid prior to the murder;
- when Gibson and Knox were arrested, Gibson told the police it was his gun and that Knox had bullets in his pocket;
- Brian Rose and Knox hung out together constantly
- Jamal Knox admitted to the witness (not long before his death in April 2007) that he and Rose approached the witness in the parking lot where an altercation broke out and the victim was shot;
- Rose admitted to the witness that he and Knox went to meet the victim, that Jamal Knox had an altercation with the victim and that the victim was shot.

4. **Witness D**

Witness D described the following statements by Rose:

- Witness D asked Rose why his fingerprints were found on the victim's car Rose told Witness D that he left must have left his fingerprints on the victim's car when he tried to steal it a couple of days before the murder. Witness D did not believe Rose's explanation.

Rose's admissions to the above federal grand jury witnesses were unknown to the

state prosecutors, and, therefore, to the state judge. Particularly in light of the nature of the relationship between Rose and these witnesses, his admissions that he was present and involved in the carjacking provide compelling corroboration of the fingerprint evidence and that the applicable methodology is reliable.

III. DISCUSSION

A. The Fourth Circuit and Every Federal Court of Appeals Continue to Allow Expert Evidence of the Identification of Latent Fingerprints Pursuant to the ACE-V Methodology Without a *Daubert* Hearing

The determination the Court has to make is straightforward: Is the ACE-V methodology of latent fingerprint identification sufficiently reliable to permit its introduction, and to do so without a *Daubert* hearing? Rose, of course, does not have the law–*any* law- that supports the proposition that ACE-V methodology is unreliable or that admission of such evidence requires a *Daubert* hearing. The authority cited by the government in its initial motion *in limine*, and several cases discovered in the interval, expressly holds that the ACE-V methodology IS reliable and that evidence of latent print identification is admissible without a *Daubert* hearing. *See* Attachment 1, Case Summary Chart.

The essence of Rose's challenge to the admission of evidence of identification of latent fingerprints, whether under *Frye* or the *Daubert* standard used in federal court, is

that the ACE-V methodology is "unreliable." This Court, of course, is familiar with *Daubert* and recently applied it to proffered expert evidence. *See United States v. Vincent*, 316 Fed.Appx. 275 (4th Cir. 2009) (affirming admission of expert testimony as to interstate nexus of firearm). Expert testimony is admissible if it concerns: (1) scientific, technical, or other specialized knowledge that (2) will aid the jury or other trier of fact to understand or resolve a fact at issue. Fed.R.Evid. 702; *see Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 592 (1993); *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 141 (1999) (extending *Daubert 's* two-pronged gatekeeping test for scientific evidence to all expert testimony). An expert's testimony is admissible under Rule 702 if it "**rests on a reliable foundation** and is relevant," *Kumho Tire Co.*, 526 U.S. at 141(emphasis added), and falls outside the common knowledge of the jury. *See United States v. Dorsey*, 45 F.3d 809, 814-15 (4th Cir.1995).

As established in the government's original motion *in limine* and further addressed herein, the federal courts (and every state court save a single judge in Baltimore County) have universally accepted that the methodology of the identification of latent fingerprints satisfies *Daubert (and Frye)* and that such evidence may be admitted without a *Daubert* hearing.

In *United States v. Crisp*, 324 F.3d 261, 266-71 (4th Cir.2003) the Fourth Circuit held that expert testimony as to the identification of latent fingerprints satisfies *Daubert* and that no pretrial hearing is necessary. Indeed, aside from the state court in Rose, no other court

anywhere, including no other judge on the Baltimore County Circuit Court, has excluded fingerprint evidence on the ground that it does not satisfy *Daubert's* requirement of reliability. It is also acknowledged that latent fingerprint methodology results in far more exclusions of suspects than it does identifications resulting in prosecutions. The recent National Academy of Sciences Report (NAS) on the forensic sciences, which Rose misleadingly asserts concluded that AVE-V methodology was unreliable, described the identification of fingerprints as a "valuable tool, both to identify the guilty and to exclude the innocent." NAS at 5-12. Indeed, it is precisely because latent print identification is such a reliable and powerful tool for law enforcement and in the struggle against terrorism that the NAS report recommended, among other things, the implementation of uniform national standards for application of the ACE-V methodology. NAS at 5-12-13. Also, one of the twelve recommendations by the NAS, and one enthusiastically supported by professional organizations such as the IAI and SWGFAST, is to "achieve nationwide fingerprint interoperability." NAS at S-23-24. Such a recommendation is hardly consistent with Rose's claim that the NAS concluded that fingerprint identification methodology is unreliable.

Rose argues that the courts, including the Fourth Circuit, have allowed latent fingerprint evidence merely because they have been doing so for over 100 years. To the contrary, particularly in recent years, there have been numerous cases in which latent print

identification has been subjected to a rigorous *Daubert* analysis. In *United States v. Llera Plaza*, 179 F.Supp.2d 492 (E.D.Pa. 2002) (*Llera Plaza I), Opinion Vacated and Superseded on Reconsideration by United States v. Llera Plaza,* 188 F.Supp.2d 549 (E.D.Pa. 2002) (*Llera Plaza II*), Judge Pollak rejected the very claims now repeated by Rose. While initially limiting the scope of the expert's opinion, Judge Pollak reversed himself after an evidentiary hearing at which the supposed deficiencies of latent print identification were debunked. After carefully scrutinizing each *Daubert* factor, Judge Pollak held that the ACE-V methodology was reliable and complied with *Daubert*. *United States v. Llera Plaza,* 188 F.Supp.2d at 576.

In 2003, the Fourth Circuit rejected the same *Daubert* challenges rejected by Judge Pollak in 2002. *See United States v. Crisp*, *supra*. Like Judge Pollak, the Fourth Circuit did not base its findings merely upon the 100-plus years of precedent for the admission of such evidence. The Court undertook a factor by factor analysis of latent print identification and concluded that ACE-V methodology complied with *Daubert*–and that no pre-trial *Daubert* hearing was required.

Moreover, as recently as July 20, 2009, in *United States v. Baines*, --- F.3d ----, 2009 WL 2139117 (10th Cir. 2009) the Tenth Circuit conducted its own rigorous application of the *Daubert* factors upon which it affirmed the district court's finding that fingerprint identification testimony based on application of ACE-V methodology was reliable and satisfied *Daubert*. The *Daubert* hearing in the district court included the testimony of former

FBI analyst Steve Meagher. Agent Meagher was the expert witness for the state in Rose, for the government in Llera Plaza and was involved in the FBI's review of the misidentification of Brandon Mayfield. *See also*, *United States v. Spotted Elk*, 548 F.3d 641, 663 (8th Cir. 2008) ("A *Daubert* hearing is not required when the record already establishes that such testimony is admissible).

Since 2003, then, and until as recently as July 2009, the Fourth Circuit and every other federal circuit (as well as judges in this district) have continued to allow evidence of latent print identification without a *Daubert* hearing.

B. Lack of a Numerical Point Requirement Does Not Render ACE-V Unreliable

The OIG and NAS reports both make mention of the fact that the ACE- V methodology does not require documentation of some arbitrary number of "points" as a predicate to making an identification. The state judge in Rose and other uninformed critics of the latent print profession have seen the abandonment of numerical guideposts ("point" counting) in making identifications as evidence of a lack of criteria in conducting examinations. This deduction is in error. "No scientific basis exists for requiring a pre-determined minimum number of friction ridge features must be present in two impressions in order to establish a positive identification." *See*, Proceedings of the International Symposium on Fingerprint Detection and Identification (Report by Pierre

Margot and Ed German, Fingerprint Identification Breakout Meeting) J. Almog & E. Springer, eds., June 23-30, 1995, Ne'urim, Israel. See also, Andre Moenssens, Carol Henderson & Sharon Portwood, Scientific Evidence in Civil and Criminal Cases, 5th Edition, 2007, at p. 645 (in Chapter 10 on Fingerprint Identification).

The abandonment, many years ago, of a numerical standard actually signified an advance toward increased use of scientific approaches in fingerprint comparisons and provided the basis for progressive new criteria. "It resulted in the re-examination of ridge morphology studies, a reaffirmation of principles long held sacrosanct among fingerprint professionals, the recognition of valuable detail in ridge structure that went beyond Levels 1 and 2 detail, and the adoption of the ACE-V methodology, which in turn has continued to be clarified and improved since the 1980s." Amicus Brf. at 3.

> The decision whether the total volume is sufficient for individualization may differ according to the approach. It is not the calculation of a number of points that automatically leads to identification. **It is the total constellation of all the information**, as a coherent complex of which the relations are the same, and the details, as far as present, fit within tolerances, which constellation is weighed and referenced with individual knowledge with or without an empirical standard.

Amicus Brf. at 3.

C. The Element of Subjectivity in Fingerprint Identification Is Similar to that In DNA Analysis and Does Not Render the Methodology Unreliable

The accreditation of the FBI Latent Print Unit and the training, certification and periodic proficiency testing of latent print examiners, including those in Baltimore County, are described in the OIG report. OIG at 95-97.[2] Critics such as Rose also assert that the identification of latent fingerprints is too "subjective" to be reliable. All authorities acknowledge that the ultimate opinion following the application of the ACE-V methodology does have a subjective component - as does DNA analysis. The subjective aspect of the methodology has been criticized as being less reliable than DNA analysis, however, which is (incorrectly) perceived as being an "objective" process. As experts such as Agent Meagher has explained over and agin, and as the expert contributors to the amicus brief reiterate, while expert latent print examiners must reach an opinion, that opinion is guided by a standard (and fairly simple) methodology which, when correctly applied by a *trained examiner*, can be held out as reliable based upon the quality and quantity of the information present in the latent. OIG at 111.[3] The authors of the Amicus brief, a group that includes some of the most widely respected experts in the field, described the objective application of the methodology in identifying a latent print this way:

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[2] The ACE -V methodology is described at 105-118 of the OIG. *See also*, NAS Ch. 5, 8-12.

[3] The recognition of details ("points" of similarity) sufficient to make an identification is sometimes called "Ridgeology." OIG at 117

> The individualization decision is an opinion formed by a trained examiner at a particular stage of the ACE-V process. **It is based on the apprehension of the nature, the quality and the quantity of details which are present in the latent and in the control prints.** Thus, the ACE-V method can be applied reliably in cases where only a small portion of a total fingerprint is visible in a latent impression, as long as sufficient quantity and quality of detail is present in the latent impression. The ability to engage in such analysis is but one factor of the immense variety of ridge detail that nature provides. "Sufficiency" determinations depend on the skill and experience of an examiner, as is the case with all professions offering expert conclusions and opinions in courts.

Amicus Brf. at 10.

One of the myths that has been perpetrated by critics of fingerprints since *Llera PLaza* is that identification of latent prints needs to be "more" like DNA analysis, as if DNA analysis had no subjective aspect and is therefore more reliable. Anyone who has witnessed the cross-examination of a DNA analyst, however, will appreciate that many aspects of a DNA analysis rely totally on the judgement, training and expertise of the analyst- just as it does with latent print examiners. *See* Amicus Brf. at 11. [4]

In fact, the expert contributors to the amicus brief inform us that fingerprint comparison methodology is fully compatible with DNA comparison methodology. DNA analysts must apply an element of informed judgment during the analysis of the output

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[4] See,Richard O. Lempert, "The Honest Scientist's Guide to DNA Evidence," in Bruce S. Weir (ed.) Human Identification: The Use of DNA Markers, Vol. 4 (Dordrecht, 1995) pp. 119-124: ". . . The honest scientist recognizes that she herself is a test instrument, and a fallible one at that. Subjectivity inescapably enters into any human endeavor, and should not be denied. **DNA testing is rife with subjective elements**, no place more so than at the crucial stage of deciding whether a match exists. [. . .]: (at 119)

(called EPG) of a DNA sequencer to differentiate a true detected allele from what is in the background or considered as an artifact. This "subjective"application of the analyst's training and experience is very similar to the approach applied by a fingerprint examiner when they analyze a latent print and decide what is the relevant "signal" or feature to be used in the comparison process.

> [I]n being required to make some subjective determinations, fingerprint examiners are not different from DNA examiners. The only major difference between the two is that DNA examiners systematically use random match probability calculations to assess a case, whereas fingerprint examiners tend to shy away from numbers that are not embracing the full spectrum of features used in the comparison process. **But science nowhere asserts that subjectivity has no place in scientific expert evaluations**.

Amicus Brf. at 12. (Emphasis added)

D. The Recent NAS Report Does Not Purport to Reach Legal Conclusions About Admissibility of Latent Print Evidence

Contrary to Rose's assertion, the NRC Forensic Science Report nowhere states that ACE-V is unreliable or inadmissible under *Daubert*. The Committee members of the NRC Forensic Science Report expressed no intent to alter the general acceptability of any forensic discipline. Indeed, the Honorable Harry T. Edwards, Co-Chair for the NRC Forensic Science Report, has stated on the public record that the report *is not intended* to affect the admissibility of any forensic evidence.

In his opening statement to the press on the day the report was issued, the

Honorable Harry T. Edwards, Co-Chair for the NRC Forensic Science Report, stated in part as follows:

> . . . **I want to make clear that the committee's report does not mean to offer any judgments on any cases in the judicial system**. The report does not assess past criminal convictions, nor does it speculate about pending or future cases. And the report offers no proposals for law reform. That was beyond our charge. Each case in the criminal justice system must be decided on the record before the court pursuant to the applicable law, controlling precedent, and governing rules of evidence. **The question whether forensic evidence in a particular case is admissible under applicable law is not coterminous with the question whether there are studies confirming the scientific validity and reliability of a forensic science discipline**.

Opening Statement, The Honorable Harry T. Edwards. (emphasis added)

Later, in response to questions, Judge Edwards stated:

> ...And in any given case right now, as before, a judge is governed by the existing law, the controlling precedent, and the rules of evidence, and the judge makes the determination, for example, under Rule 702, as to whether or not, and other appropriate standards, as to whether or not the evidence that has been proffered in any particular case satisfies that rule standard and therefore should be admitted. *It's not a judgment on the scientific validity and reliability of the entire discipline*; the question is whether the evidence being proffered in a particular case satisfies the legal standard, and then should be weighed against other evidence presented in court in determination of whether there is guilt or innocence. Remember, in many of these trials, we're not just talking about just forensic evidence. We're talking about a body of evidence that comes in and the fact finder, be it judge or jury, weighs to determine whether or not the person has been proven guilty beyond a reasonable doubt. So I think judges will continue to follow the law as it is. We're not proposing law reform. Will there be law reform? We don't know. Might some people propose it? I don't know. Maybe. But there is no law reform proposal here; so judges will continue to do what they have been

doing.[5]

Judge Edwards's sentiment was echoed by Kenneth E. Melson, Acting Director of the Bureau of Alcohol, Tobacco, Firearms and Explosives ("ATF") in his testimony before Congress on May 13, 2009, where Mr. Melson stated that, "[T]he report does not recommend any rule or law changes in the area of evidentiary admissibility." Thus, Rose's reliance on the NRC Forensic Science Report as authority for the proposition that the methodology of latent print identification is unreliable is a serious distortion of the intent and purpose of the report.

E. The NAS Report Does Not Conclude that the Methodology of Latent Fingerprint Identification Is Unreliable

Rose has falsely attributed to the NAS report conclusions about the reliability of fingerprint examination that simply cannot be found anywhere in the Report. Actually, neither the NAS report nor the OIG report of the misidentification of Brandon Mayfield concluded that ACE-V methodology is unreliable. The misidentification of Mr. Mayfield,

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[5] We further note, on March 18, 2009, when testifying before the United States Senate Committee on the Judiciary, Judge Edwards opined that it was possible that a trial court might take the findings of the NRC into consideration, but reiterated that "each case in the criminal justice system *must be decided on the record before the court pursuant to the applicable law, controlling precedent*, and governing rules of evidence." Statement of Judge Edwards before the United States Senate Committee on the Judiciary (emphasis added). The government has not attached complete transcripts of Judge Edwards' or Mr. Melson's comments but these can be can provided upon request.

while unfortunate, serves to show that while mistakes can be made by examiners, they are very rare[6]. The mistake in Mayfield was so unusual that it resulted in a national uproar and two separate investigations, both of which validated the ACE-V method. As noted earlier, the misidentification of Mayfield was not the result of an unreliable methodology but rather the "failure to properly follow the [ACE-V methodology] in fingerprint examination." OIG Report at 127; 194, 269.[7] Rose, however, has deliberately distorted the findings of the OIG and NAS reports and suggests that they concluded that ACE- V was unreliable. That is simply not so. "Nowhere in the OIG report is it stated or implied that the ACE-V method is defective or unreliable. Indeed, it was by the correct application of the ACE-V method that the Mayfield error was detected and recognized internally by the FBI Latent Print Unit, and thereafter by the broader fingerprint community." Amicus Brf. at 10; *and see* OIG at 191-94 . Regardless, Rose attempts to sidestep the longstanding

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[6] As noted in the OIG report, in 2002, the now- retired FBI expert Steven Meagher, who was a state witness in the Rose case, testified that to his knowledge no FBI print examiner has ever testified to an erroneous identification in court and that he was unaware of any instance in which any *other* examiner has ever testified that an FBI examiner made an erroneous examination. OIG at 124. On July 20, 2009, in *United States v. Baines*, --- F.3d ----, 2009 WL 2139117 (10th Cir.2009) the court found that ACE-V satisfied *Daubert* and was reliable under FRE 702. The *Baines* court credited Mr. Meager's testimony that an error occurs in about one in *11 million comparison*s.

[7] The NAS report, upon which Rose hinges his entire argument, likewise does not in any way suggest that latent fingerprint methodology is unreliable. Indeed, it refers to the training programs in ACE-V methodology offered by the IAI and SWGFAST, and used to train examiners in Baltimore County, as "excellent." NAS at 5-8.

general acceptance of the ACE- V methodology by ignoring the thrust of the OIG report and mis- characterizing the nature of the NRC Forensic Science (NAS) Report.

If the NAS report's goals and recommendations could be summarized in one word, that word would be "standardization." Above all else, the NAS seeks not to discredit ACE-V, but to create, fund and support a National Institute of Forensic Sciences that would adopt and impose national standards for each of the forensic practices, including latent print identification. *See* NAS, Findings and Recommendations, S-10-24. The standard methodology recommended for latent print examination has already been implemented by the FBI-- and had been implemented by Baltimore County long before Rose was identified. Nowhere in its finding or recommendations, however, does the NAS conclude that ACE-V methodology is unreliable.

The NAS report, the OIG report, the authors of the amicus brief and professional organizations such as the IAI and SWGFAST are all in agreement that there is room for improvement in the methodology. The NAS recommended improvements such as the imposition of imposing universal standards for accreditation of crime labs and training of examiners. The NAS also recommended funding more research of ridge flow patterns and environmental factors that affect the quality of latent prints. NAS at 5-14. However, neither the NAS nor the Mayfield reports come close to challenging the underlying premises or the reliability of latent print identification. As noted, the NAS report

specifically recognized that latent print identification based on the ACE -V methodology "has served as a valuable tool , both to identify the guilty and exclude the innocent." NAS at 5-12.

As for the proposed defense "experts", the Habers, review of their various papers and of Mr. Haber's state testimony in Rose reveals that their conclusion - that ACE-V is not valid - is based completely on their interpretation of the methodology, which is strained and contrived. Whatever expertise the Habers may have, they are not lawyers, not experts in any forensic science and certainly not experts in latent fingerprint identification. Mr. Haber has degrees limited to the field of psychology. *See*, Transcript, Cross-examination of Ralph Haber in *State v. Rose*, at 117.

When called as a defense witness to offer his opinion as to the validity of ACE-V, Ralph Haber has opined that the "ACE- V" method is "not valid. His opinion is based on his conclusion (one not shared by actual fingerprint experts) that the ACE-V method, as taught by practitioners such as Casey Wertheim, David Ashbaugh and instructors with the LAPD, actually consists of not one but *several* distinct protocols, each of which is "different" and "untested." It follows, he has claimed, that since each of these distinct protocols has not been tested, they cannot be said to be valid. Mr. Haber's testimony in this regard is not based on anything but how he has chosen to construe the teaching of the same method by three different instructors. The "differences" upon which he makes this

deduction, however, are exaggerated and meaningless.

For example:

25 Q. 2005, David Ashbaugh from Canada also taught
1 you in the ACE-V method?
2 A. Yes.
3 Q. It is the method taught in three classes you
4 have taken, correct?
5 A. No, what we were taught was different in all
6 three classes.
7 Q. It was different?
8 A. Yes.
9 Q. Okay.
10 A. In other words, Mr. Wertheim, very well
11 established examiner, very respected, on many of the
12 boards, IAI, did not teach the same thing David
13 Ashbaugh taught, not bizarrely different, but a number
14 of the steps were different it in. A number of the
15 concerns were different in it, and a number of
16 strategies, teaching us how to carry out examination.

My experience was in the three that I took were not different, I have participated in number of trials in which the examiner was asked to describe how did he carry out the examination, not one of those is matched in the description of the ACE-V with any of the others, **they are different**.

State v. Rose, Haber Cross at 146.

Based upon his inventively nuanced perception of "fundamental differences" in the "different" ACE-V protocols, Haber opines that since (in his view) "no single protocol" has been "officially accepted by the profession," these different various ACE-V methods have not been "validated." Therefore, it is impossible to say that ACE-V is reliable. He simply ignores all evidence to the contrary. An example:

Q. Okay. You indicated that, um, there needs to be a standard that in order to validate the ACE-V method, correct?

A. No, I testified this is set of standards that are missing outside of ACE-V method that need to be put into them, until those standards are written down and themselves tested and validated, they can't test, **you**

25 can't validate the method.

Id. at 64.

Another example of what Ralph Haber has testified to be a "fundamental difference" among the protocols is that, according to him, of his three instructors, one instructor said it was best not to tell an examiner the circumstances of how the latents were recovered, while another instructor didn't mention this "factor" at all and a third proposed that such information was useful. Based on this allegedly "fundamental methodological difference," Haber has asserted that since there was not a single standardized practice in this regard, the "validity" of ACE-V could not be assessed. *See*, Rose , Haber Cross at 147-52. This is the sort of artifice that allows Haber to testify as to his desired conclusion—despite that he is not an expert examiner and has no idea how insignificant such information really may be. *Id*. at 151. It is upon this sort of pseudo-academic nonsense that Rose supports his claim that the fingerprint evidence in this case is unreliable.

Haber has also concluded that what he refers to as the absence of a "rule" for assessing, during the ANALYSIS phase, whether a latent is suitable for comparison, likewise invalidates the method. Haber completely discounts the years of training and experience that an examiner must undergo (as did the Baltimore County examiners) in learning how to assess the quality and quantity of information in a latent during the

analysis phase. Haber wants a "rule."

Here, Haber testifies to what he perceives to be a lack of "objectivity in the ANALYSIS phase.

Q. Analysis is basically get information, how much information do you have with that print, determine whether it is good or not, how much extraneous information, you don't necessarily need, that is all in the analysis phase; is that correct?

A. That's correct. But I have to make a decision in the analysis phase, and the decision is, is there enough information in -- in the print that I have confidence in so that I could on to the next step.

Q. Your theory, because you have to make a decision that's subjective?

A. By golly it is, there is no rule.

Id. at 155.

Ironically, Mr. Haber's approach (he seems to take great satisfaction in proclaiming that he "just doesn't know!!) is designed to exploit, for the purpose of excluding fingerprint evidence, the very factors that the *Daubert* court intended to be used to *expand*

the *Frye* "general acceptance" standard. The *Daubert* factors were designed to screen out junk science, but to facilitate the introduction of new (and perhaps not yet generally accepted) areas of expert testimony. Whatever Haber's testimony relates to, it has nothing to do with the issue at hand, which is for the court to decide (once again) whether, by a preponderance of the evidence, that latent fingerprint evidence is reliable.

1. The NAS Report Does Not Dispute the Conclusion in *Crisp* that ACE-V Methodology Has Been Tested

As pointed out in the amicus brief, "It is erroneous to assert no scientific validation of fingerprint comparison outcomes have been conducted using statistical models." Amicus Brf. at 12. The contributors to the amicus brief point out that the underlying premises of uniqueness and permanence have been tested in numerous ways beyond the simple fact that in more than one hundred years of fingerprint identification no two persons have ever been found to have the same fingerprints. In the FBI study described in *United States v. Mitchell*, 365 F.3d 215, 244 (3rd Cir. 2004), the results of which were referred to approvingly by the Tenth Circuit in *Baines*, *supra*, tens of thousands of sample latents were compared. The sample latents were obtained by extracting about 20% of the data from each print and then comparing these partial prints to every other print in the database. "The study concluded, with a very high degree of certainty, that there is almost *no chance* of ever finding two persons to have the same print, even when based on such partial prints." *See United States v. Baines*, --- F.3d ----, 2009 WL 2139117 (10th Cir.2009).

The Amicus also referred to some of the tests that have been conducted of the two premises of ACE-V--uniqueness and permanence of fingerprints.

> The ACE-V process for analysis, comparison and evaluation relies on the biological uniqueness premise of all friction ridge skin, a premise accepted world-wide to allow a trained examiner to distinguish between impressions from different sources and to form an opinion, under specific circumstances, on the individualization of others. Many attempts have been made to falsify the premise of uniqueness. That is the essence of the many twins' studies and comparisons of their fingerprints which have been conducted over many years; it is also the essence of operational experience and statistical models that were developed by various researchers.

Amicus Brf. at 10. *See also*, Henry C. Lee and Robert E. Gaensslen, eds., Advances in Fingerprint Technology, 2d ed 2001, at 414. Lee & Gaensslen note that testimony about the FBI 50/50 statistical study on partial prints was presented at the *Mitchell* trial, [US v. *Mitchell*, 365 F.3d 215, 244 (3rd Cir. 2004) by Dr. Donald Ziesig, an algorithmist with Lockheed Martin.

The amicus brief also refers to recent studies of statistical evaluation of partial latent print impressions that show that the discrimination offered by partial fingerprints is very high even down to configurations of three minutiae ("points"). The random match probabilities involved compete favorably with DNA profiling. Researchers have shown that random match probabilities were in the order of 1 in 10,000 for four minutiae and 1 in 1,000,000 for six minutiae.

As the Tenth Circuit concluded in *Baines, supra* on July 21, 2009, and as this Circuit

has already held, "**[T]he theories underlying fingerprint identification-that fingerprints are unique and permanent, and that identification matches can be made from fingerprints containing sufficient detail-are testable and have actually been tested by experience.**" *Baines,* 2009 WL 2139117 at 9.

> ... **the core proposition-that reliable identifications may be made from comparison of latent prints with known prints-is testable**. And unquestionably the technique has been subject to testing, albeit less rigorous than a scientific ideal, in the world of criminal investigation, court proceedings, and other practical applications, such as identification of victims of disasters.

> Thus, while we must agree with defendant that this record does not show that the technique has been subject to testing that would meet all of the standards of science, it would be unrealistic in the extreme for us to ignore the countervailing evidence. Fingerprint identification has been used extensively by law enforcement agencies all over the world for almost a century. Fingerprint analysts such as Mr. Fullerton, who have been certified by the FBI, have undergone demanding training culminating in proficiency examinations, followed by further proficiency examinations at regular intervals during their careers. Although these proficiency examinations have been criticized on several grounds, most notably that they do not accurately represent conditions encountered in the field, we see no basis in this record for totally disregarding these proficiency tests.

Baines, 2009 WL 2139117 at 11.

2. The Courts Agree that ACE-V Has Been Peer Reviewed

Rose suggests that the NAS report concluded that there was a lack of peer reviewed studies establishing the validity of fingerprint identification. However, the contributors to the amicus brief, who unlike Mr. Haber, are actually experts in latent fingerprint

identification, cite to numerous peer reviewed studies of the validity of latent print identification, including the following: Cédric Neumann, Christophe Champod, Roberto Puch-Solis, Didier Meuwly, Nicole Egli, Alexandre Anthonioz et al., "Computation of Likelihood Ratios in Fingerprint Identification for Configurations of Three Minutiae," 51 J. Forensic Sci. 189 (2006); Nicole Egli, Christophe Champod & Pierre Margot, "Evidence evaluation in fingerprint comparison and automated fingerprint identification systems–Modelling within finger variability," 167 Forensic Sci. Int'l (1-2), 2007 167; Cédric Neumann, Christophe Champod, Roberto Puch-Solis, Nicole Engli, Alexandre Anthonioz & Andie Bromage-Griffiths, "A Computation of Likelihood Ratios in Fingerprint Identification for Configurations of Any Number of Minutiae," 52 J. Forensic Sci. 54 (2007). *See*, Amicus Brf. at 12, n.20.

Also, as noted in the government's initial filing, the previously mentioned Mayfield OIG Report, which was published in March 2006, represents the very essence of the "peer review" of ACE- V methodology. The OIG retained several leading experts in latent print identification methodology to conduct a comprehensive review of the methodology and its application in regard to the FBI's misidentification. *See* OIG, Chapters 3-4. The authors of the OIG report relied heavily on several important works in the field of latent print identification, foremost among them David Ashbaugh's Quantitative-Qualitative Friction Ridge Analysis, An Introduction to Basic and Advanced

Ridgeology (CRC Press 1999). OIG at 98. Mr. Ashbaugh's work, in turn, includes an extensive eleven page bibliography of works on a myriad of topics related to every aspect of latent print identification. *See* Gov't Mot., Attachment 3, Ashbaugh Bibliography.

Finally, in July 2009, the Tenth Circuit adopted the testimony of former Agent Meagher and joined the Third Circuit in *Mitchell* (and the Fourth Circuit in *Crisp*) in concluding that "[T]he ACE-V protocol constituted peer review and weighed in favor of admission." *Baines*, 2009 WL 2139117 at 9.

3. Latent Print Identification has Been Demonstrated To Have a Exceedingly Low Incident of Error

What may be most notable about the Mayfield case is that it serves to highlight just how incredibly rare it is that an error occurs in latent print identification.

As has been noted, the courts, including the Fourth Circuit in *Crisp*, have concluded that latent print examination satisfies the *Daubert* "error rate" factor. While, as the Amicus contributors explain, there has been no determination of a statistically based "rate of error," experts in the field have testified numerous times that there is an exceedingly low incidence of error in latent print analysis. "Amici recognize that no generally accepted or statistically validated error rates exist for fingerprint identification methodology. Thus, the State's expert testimony [in Rose] that there 'is no error rate for ACE-V' [ ] is correct."

Amicus Brf. at 6. As the contributors further point out, "To conclude from this fact that fingerprint identification is unreliable, as critics may assert when they vaunt the assumed "superiority" of the DNA statistical model, is an uninformed deduction."

> [T]he DNA statistical model neither guarantees accuracy, nor does it constitute the panacean "objective" measure that removes subjectivity from the comparison of known and unknown biological samples. DNA statistics do not represent an "error rate" for the DNA method, nor do they establish or guarantee accuracy...[and that] [w]hile fingerprint identifications may not have received the benefit of misguided trust that a general public enamored by astronomical figures places in DNA, **misidentifications are equally infinitesimally rare considering the millions of comparisons conducted daily on a worldwide basis.** Most of these comparisons result in exclusions. Individualizations are, comparatively speaking, rare. Contrary to what critics of fingerprint methodology suggest, the establishment of an error rate is also not a prerequisite of science...[E]ven if every false positive identification signified a problem with the identification method itself (i.e., independent of the examiner), the overall error rate still appears to be microscopic."

Amicus Brf. at 7. (Emphasis added)

The amicus contributors also instruct us, as many courts have already held, that there are at least three indicators other than statistics that establish a low error rate for fingerprint methodology. It is submitted that these indicators are equally relevant as to the *Daubert* factors of testibilty, peer review and the existence of standards. They are:

> (1) Past Experience: It is true that the long history of fingerprint use does not, of itself, establish its reliability. It nevertheless constitutes a significant factor that cannot be ignored. While there have been errors made by individual practitioners, the very low number of genuine wrong individualizations is a reality. ...When seen in the light of the hundredths of thousands of analysis conclusions reached yearly, the error rate turns out to be minuscule, indeed, effectively close to nil...

> (2) Statistical Studies: Over the years, and particularly in the past six years, an impressive number of studies have been completed by highly credentialed research scientists in calculating fingerprint frequency feature frequencies and the likelihood of erroneous associations. While older calculation methods were subject to study-design limitations and criticism because of the difficulty of accounting for the immense diversity of ridge structure detail in actual case work, they invariably show an extremely low potential error rate. The more recent models are preferred, because they consider both within-person variability (tolerances) and between-person variability.
>
> (3) Proficiency Testing: While proficiency testing does not provide an ideal measure of validity in that it does not always compare to casework, the output of such testing, if the testing was done in controlled settings, gives an adequate measure of global performance within the profession. Even though errors are reported, they are few. Indeed, their number is not great compared to other forensic disciplines...

Amicus Brf. at 8-9.

Finally, following the lead of the Fourth Circuit, among others, the Tenth Circuit in *Baine* recently found that the incident of error in latent examinations (even if not a statistically derived "rate of error") was "impressively" low.

> ...even allowing for the likelihood that the actual error rate for FBI examiners may be higher than reflected in Mr. Meagher's testimony, the known error rate remains impressively low. We are not aware of any attempt to quantify the maximum error rate that could meet *Daubert* standards, but surely a rate considerably higher than one per 11 million could still pass the test. We conclude that the evidence of the error rate on this record strongly supported the judge's decision to admit the expert testimony.

Baines, 2009 WL 2139117 at 11.

4. The NAS Did Not Conclude that ACE-V Lacks Standards

As with DNA analysis, the ultimate opinion of the latent fingerprint examiner is based on their training and experience. In the final analysis, the opinion of the examiner, whether as to DNA or a fingerprint identification, must be based on the analyst's application of the methodology. As discussed above, Rose asserts that ACE-V is too subjective and it lacks objective standards that govern the examiners application of the ACE-V technique. However, as the amicus have noted and the Court in *Crisp* (and every Court of Appeals) have already held, such standards are *inherent* in the ACE - V methodology .

> In addition to a strong expert and judicial consensus regarding the reliability of fingerprint identification, **there exist the requisite "standards controlling the technique's operation**." *Daubert*, 509 U.S. at 593, 113 S.Ct. 2786. As Brannan testified, while different agencies may require different degrees of correlation before permitting a positive identification, fingerprint analysts are held to a consistent "points and characteristics" approach to identification. Analysts are also consistently subjected to testing and proficiency requirements. **Brannan's testimony is entirely in keeping with the conclusions of the post-*Daubert* courts that uniform standards have been established "through professional training, peer review, presentation of conflicting evidence and double checking.**" *Rogers*, 2001 WL 1635494, *1; *see also, e.g., Llera Plaza*, 188 F.Supp.2d at 566-71 (detailing development of identification criteria and holding that "standards which control the opining of a competent fingerprint examiner are sufficiently widely agreed upon to satisfy Daubert requirements")

United States v. Crisp, 324 F.3d 261, 266-69, 207-71 (4th Cir. 2003) (*cert. denied* 540 U.S. 888 (2003).

It might also be noted that the government expert offered in *Crisp* was the local police department examiner who made the identification. He was not especially conversant on the particular *Daubert* issues. Regardless, even this relatively unsophisticated expert witness provided a sufficient basis for the court to find the method to be reliable and upon which the Fourth Circuit solidly endorsed latent print identification. [8]

5. The NAS Report Does Not Contradict the Fourth Circuit's Finding That There is General Acceptance of the Reliability of Latent Print Methodology

Rose has already conceded that in *Crisp* the Court concluded that ACE-V methodology (that is, latent print identification) was generally accepted by the relevant experts and the courts. That alone should have resulted in the admission of this evidence in the state, which is supposed to apply the *Frye* "general acceptance" test.

Rose suggests that the NAS report establishes that there is no general acceptance. Def. Mot. at 52. However, the report says no such thing. In fact, as noted, a stated goal of the NAS report is the establishment of a "nationally interoperable" automated print identification system(e.g. AFIS is such a system) in which state local and federal data

[8]The Baltimore County examiners who identified Rose, on the other hand, are trained, conduct examinations (including verification) and are proficiency tested according to the protocols followed by the FBI and SWGFAST, which the NAS and OIG recommend as the standards that should be adopted nationwide.

bases could be quickly shared and accessed, resulting in "more solved crimes, fewer wrongful identifications and greater efficiency in fingerprint searches." NAS at S-23. Such a recommendation hardly reflects a lack of general acceptance of the method-keeping in mind that even with an automated search the final identification is made by an examiner using ACE-V.

Moreover, the OIG report *embraced* ACE-V methodology. The OIG report concluded that it was deviation from the methodology that resulted in the mistaken identification of Mayfield. "[T]he primary cause of the error was practitioner error." OIG, in the Executive Summary, Page 6, Section IV, A. The OIG Report expressly found that "the examiners committed errors in the examination procedure, and that the misidentification could have been prevented through a **more rigorous application of several principles of latent fingerprint identification**." *Id*.; Amicus Brf. at 9. The OIG report then, stands for acceptance of ACE-V by the relevant expert community (of which the Habers are not members).

In *Crisp*, the Fourth Circuit held that:

> While the principles underlying fingerprint identification have not attained the status of scientific law, they nonetheless bear the imprimatur of a **strong general acceptance**, not only in the expert community, but in the courts as well. *See Havvard*, 260 F.3d at 601 (noting lower court's observation that fingerprint analysis*269 has enjoyed "100 years of successful use in criminal trials"); *Llera Plaza*, 188 F.Supp.2d at 563, 572-76 (describing longstanding consensus in expert community as to reliability of fingerprint identification process in holding admissible expert fingerprint identification evidence); see

> also *Hernandez*, 299 F.3d at 991 (upholding admissibility of fingerprint identification evidence one year ago); *Jennings*, 96 N.E. at 1083 (upholding admissibility of fingerprint identification evidence ninety-two years ago).

Crisp, at 268-69.

The *dissent* in *Crisp*, perhaps because of the somewhat deficient record in that case, chose to ignore the broad acceptance of latent print identification by the relevant experts and the legal community for over one hundred years. "Nothing in the record in this case shows that the fingerprint examination community has challenged itself sufficiently or has been challenged in any real sense by outside scientists. " *Crisp*, at 273 (dissent).

While perhaps in 2003 the challenges to latent print science were not to Judge Michael's satisfaction, that would likely not be the case in 2009. As the table of cases shows, time after time since 2002, courts across the country have considered and rejected *Daubert* challenges identical to those made in *Llera Plaza* and *Crisp*. How many times must Mr. Meager and other such experts be required to testify to the obvious?

> Despite the fact that fingerprint examiners are generally not reporting statistical calculations in casework because of the variety of features present in each comparison – which in the case of DNA are sometimes erroneously perceived or presented as being fully "objective" criteria – **there is "general acceptance" in the community of latent fingerprint examiners throughout the world, and in the courts, that a valid individualization can be made on a partial and incomplete latent impression provided sufficient quantitative and qualitative detail is present.** Independent scientists, sometimes critical of some phases of fingerprint methodology, have similarly agreed.

Amicus Brf. at 11.

Finally, as the government noted in its original filing, the sixteen expert law enforcement and academic signatories to the *amicus* brief, each of whom is an internationally recognized expert in latent fingerprint examination, present a recent and compelling illustration of the general acceptance of latent fingerprint identification methodology by the relevant expert community. This group of experts includes David Ashbaugh, Glenn Langenburg, Andre Moenssens and John Vanderkol, each of whom is referred to as a respected expert in the OIG report, as well as in many of the cases cited by the government. Amicus Brf. at 17-18. Mr. Ashbaugh joined the other signatories to show his concern about the serious mistakes in the state court's reasoning as to the reliability of latent fingerprint examination. The contributors to the amicus brief ARE the leaders and speak on behalf of the relevant expert community. They are now on record as accepting the methodology of latent print identification – a powerful endorsement Judge Michael did not have the benefit of hearing.

Conclusion

The court has established a schedule pursuant to which it will announce on September 4, 2009 whether to hold a *Daubert* hearing. The government respectfully submits that the law is such that the Court could rule on the matter now and issue an order that the fingerprint identification of Rose will be admitted. As stated from the

outset, and particularly in light of Rose's admissions to involvement in the carjacking, the sooner the issue of the whether the latent print evidence may be admitted without a *Daubert* hearing is resolved, the sooner the case itself is likely to be resolved.

Respectfully submitted,

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By:_____ ____/ /_____

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CERTIFICATE OF ELECTRONIC FILING

I hereby certify that on this _____ day of July, 2009, a copy of the Motion In Limine was electronically filed with the Clerk of the U.S. District Court in Baltimore, MD, and that electronic copies were sent to Stanley J. Reed and Eric Delinsky, Attorneys for Brian Keith Rose.

_____//_____
John F. Purcell, Jr.
Assistant United States Attorney

STATE OF MARYLAND	**)**	**IN THE CIRCUIT COURT**
	)	
vs.	**)**	**FOR BALTIMORE COUNTY**
	)	
BRYAN KEITH ROSE	**)**	**Case No. 03K06000545**

MEMORANDUM BY AMICI ON BEHALF OF A COLLEGE OF INTERNATIONAL PRACTITIONERS AND RESEARCHERS INVOLVED IN THE FIELD OF FINGERPRINT IDENTIFICATION AND MEMBERS OF THE SCIENTIFIC WORKING GROUP ON FRICTION RIDGE ANALYSIS, STUDY AND TECHNOLOGY (SWGFAST) IN SUPPORT OF THE STATE'S MOTION FOR RECONSIDERATION

The Amici speak on behalf of a college of international practitioners and researchers involved in the field of fingerprint identification and Members of the Scientific Working Group on Friction Ridge Analysis, Study and Technology (SWGFAST). They represent a variety of scholarly as well as technical and scientific disciplines concerned with the reliability of fingerprint individualization evidence. As scientists, Amici are concerned by the increasing dissonance between the legal and the scientific/technical communities over the nature and applicability of statistics, error rates, appropriate examination methodologies, and reliance by some courts on irrelevant argument presented as fact on the issue of the reliability/validity of friction ridge individualization. Collectively, all of us have authored books and articles in leading scientific, peer-reviewed journals on forensics and fingerprint issues, and we have made numerous conference presentations on topics related to this Memorandum before assemblies of professionals. Among our group representing the general scientific community, we include academicians as well as practicing scientists, and some who are both. Several have worked with both the prosecution and defense in criminal cases; others of us have not previously participated in a criminal case at all. Our interest in this case is not outcome-determinative; rather, our interest is in ensuring that fingerprint methodology and scientific standards are properly

understood by courts when a criminal case involves the use of fingerprint evidence.

Amici urge this Court to reconsider its decision to exclude fingerprint evidence because the reasons given for exclusion do not represent an accurate and comprehensive view of the reliability of the methodology used to compare unknown (latent) and known (inked) fingerprints in determining whether they are common to the same skin matrix.

We urge the Court, on reconsideration of its order excluding fingerprint evidence in general and in the above captioned case, to take into account our comments on issues that are critical to an important segment of the world-wide forensic science community.

I. IN EXCLUDING THE FINGERPRINT EVIDENCE IN THIS CASE, THE COURT RELIED ON TESTIMONY AND EVIDENCE THAT DOES NOT REPRESENT AN APPROPRIATE AND CORRECT VIEW OF FINGERPRINT METHODOLOGY.

A. The Court's reliance on the OIG (U.S. Department of Justice's Office of Inspector General) in the Brandon Mayfield erroneous identification reflects a misunderstanding of both the Report's conclusions and fingerprint comparison methodology.

For its conclusion that fingerprint evidence was not shown to be sufficiently reliable for admission, the Court relied heavily on the OIG Report that examined the erroneous fingerprint identification of Brandon Mayfield. Indeed, all but five of the Court's first 55 footnotes cited the OIG Report as authority for the Court's factual statements about fingerprint methodology and practice. Amici believe that the Court, in concluding that the State did not show by a preponderance of the evidence that a fingerprint examiner can reliably identify a fingerprint to an individual to the exclusion of all others using the ACE-V method, mischaracterized the OIG Report and drew conclusions from it that are contrary to the state of science. In so doing, we submit the Court, probably unintentionally, mischaracterized some of the Report's findings.

1. Lack of a "Numerical Standard"

The Court asserts that the lack of objective standards for identification by not requiring that "a Numerical Standard for identification based on a specific number of minutiae or 'points'" matching between unknown and known prints in the United States is indicative of this failure of proof. It states that other countries utilize such a "standard." This misapprehends the nature of the "numerical 'standard'."

Uninformed critics of the profession have seen the abandonment of numerical guideposts in reaching individualization conclusions as evidence there exists a lack of criteria in the fingerprint profession. This deduction is in error. The abandonment signifies an advance toward increased use of scientific approaches in fingerprint comparisons. Abandonment of numerical guides was the basis for progressive new criteria. It resulted in the re-examination of ridge morphology studies, a reaffirmation of principles long held sacrosanct among fingerprint professionals, the recognition of valuable detail in ridge structure that went beyond Levels 1 and 2 detail, and the adoption of the ACE-V methodology which in turn has continued to be clarified and improved since the 1980s. It also resulted in intense renewed interest in original research related to fingerprint practices. None of these progressive efforts have shown that what had been done prior to these advances and refinement of prior practices made earlier results of fingerprint comparisons "unreliable" or resulted in questionable identifications. The changes that were imparted clarified, and provided a better and more complete explanation for the complex considerations that have guided fingerprint examiners of years past.

Numerical "standards" that some agencies, or indeed countries, may have were never considered as providing an "objective standard for identification," but rather as a locally-adopted quality control measure. This is also why countries, law enforcement agencies, and forensic laboratories that retain a "minimum number of 'points' requirement" may differ in the number of required corresponding minutiae ("points"). Nor was it ever asserted in the professional community that such a principle based on numbers can be properly characterized as either "objective" or a professional methodological "standard."

As the world-wide organization INTERPOL explains on behalf of the European and international communities of fingerprint experts: The decision whether the total volume is sufficient for individualization may differ according to the approach. It is not the calculation of a number of points that automatically leads to identification. It is the total constellation of all the information, as a coherent complex of which the relations are the same, and the details, as far as present, fit within tolerances, which constellation is weighed and referenced with individual knowledge with or without an empirical standard.[1] In essence, the worldwide professional community recognizes that individualization is not achieved simply by adding up "points" to come to a magic number.

Indeed, today most countries that have a national policy eschew the counting of "points" as a requirement for reaching identification conclusions. The United Kingdom, from whence fingerprint identification was introduced in the United States in the early 1900s, has abandoned its early numerical approach.[2] This was recognized by a critical thinker, the Honorable Louis

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[1] *See*, Interpol European Expert Group on Fingerprint Identification II — IEEGFI II, Part 2: Detailing the Method Using Common Terminology and Through the Definition and Application of Shared Principles. Lyon: Interpol 2004, p. 28.

[2] *See*, *Regina v. Buckley*, 143 SJ LB 159 (April 30, 1999). Even earlier, the *Regina v. Thomas McAteer* (1993), a U.K. court recognized that the 16-point standard had fallen into disuse and admitted fingerprint evidence with just eight points in agreement.

Pollak, in *United States v. Llera Plaza,*[3] who suggested in his opinion that the United States had finally "caught up" with the U.K. in this regard.[4] Judge Pollak was correct in concluding that the U.K. had abandoned a numerical formula, but misapprehended the chronology of discovery and progress.

It was indeed the United States fingerprint community, speaking through the International Association for Identification (IAI) in 1973 – fully two decades before the appearance of the *Daubert* decision – which led the way in recognizing that a minimum requirement of matching characteristic minutiae between two impressions was neither an objective, nor a reliable criterion for identification. Despite the erroneous belief of many legal academicians and advocates, a numerical minimum never received a professional endorsement in the fingerprint community as a "standard," nor did there exist scientific support for such a belief. The committee, which authored what became known as the IAI Resolution of 1973 rejecting numerical formulae, was composed of distinguished researchers and experienced professionals. In producing its report, its members labored intensively for nearly three years and consulted with fingerprint professionals worldwide. Indeed, the IAI Resolution of 1973 was thereafter reaffirmed and adopted in 1995 at an international congress of fingerprint professionals meeting at Ne'urim, Israel.[5]

From a logical perspective, there is no argument that recommends adoption of any predetermined number of features for the following three reasons:

> (1) The frequency of general ridge flow varies greatly from class to class. Some types of arches would reduce the population of potential donors ten times more than whorls. A numerical standard makes no distinction between general patterns.
>
> (2) Minutiae frequency varies greatly as a function of their type and their position. Hence, any system suggesting a fixed addition of points cannot be supported from a statistical perspective. Recent studies of statistical evaluation of partial latent fingerprints have shown that the discrimination offered by partial fingerprints is very high even down to configurations of three minutiae. The random match probabilities involved compete

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[3]*See, United States v. Llera Plaza,* 188 F. Supp.2d 549 (E.D. Pa. 2002). Quoting from the *Buckley* opinion, supra n. 2, Judge Pollak stated: "The current standard prescribed for fingerprint identification [in the U.K.) is the non-numerical system which was introduced from 11 June 2001." 188 F. Supp 2d at 569.

[4]*Id* at 576.

[5]The affirming resolution states: "No scientific basis exists for requiring a pre-determined minimum number of friction ridge features must be present in two impressions in order to establish a positive identification." *See,* PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON FINGERPRINT DETECTION AND IDENTIFICATION (Report by Pierre Margot and Ed German, Fingerprint Identification Breakout Meeting) J. Almog & E. Springer, eds., June 23-30, 1995, Ne'urim, Israel. *See also,* Andre Moenssens, Carol Henderson & Sharon Portwood, SCIENTIFIC EVIDENCE IN CIVIL AND CRIMINAL CASES, 5th Edition, 2007, at p. 645 (in Chapter 10 on Fingerprint Identification).

favorably with DNA profiling.[6]

(3) When latent print quality allows, small features such as pore positions and shapes, and the topography of the edges of the ridges, can add to the identification process. No numerical standard could account for such "third-level" detail.

Even in those agencies and countries that adhere to a numerical system as a quality control measure, the practice does not guarantee that individuals will not commit errors. Since every examination involves a unique set of data, there is no assurance or study that proves an arbitrary "point" requirement will result in a more reliable examination.

The "vigorous debate among fingerprint examiners, other forensic scientists . . ." about the merit of a numerical method, which Her Honor describes on p. 18 of the Court's Memorandum Decision, does not show that without such a method fingerprint comparisons are unreliable. No profession should remain forever bound by its prior conclusions and refrain from continually reexamining them in light of increased knowledge and technological progress. Such issues, and others, have been and will continue to be debated by those who are intimately involved in the practice and application of the principles underlying fingerprint comparison methodology.

The fingerprint profession, through SWGFAST and other professional associations throughout Europe and the world, adopts a healthy attitude of debate and advocates continuing reevaluations of prior positions accepted by the discipline. That changes in overall methodology and process occur only rarely testifies to the robustness of the profession's principles and the premises it has held dear in the past. The 1973 rejection of a numerical system for arriving at individualization decisions is now generally accepted by the relevant community of professionals.[7] This position taken decades ago is neither a weakness in methodology nor does it demonstrate a lack of reliability of the ACE-V methodology.

If future changes in professional practices occur, they will also become recommended practice through their general acceptance by the relevant scientific community after intense debate and review. Seeking corrective practices is also an ongoing effort in an effort to prevent and remedy errors by individuals whenever they are found to have occurred. Indeed, the misidentifications which have been discovered in the past were all corrected by dedicated

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[6]Cédric Neumann, Christophe Champod, Roberto Puch-Solis, Didier Meuwly, Nicole Egli, Alexandre Anthonioz *et al.*, "Computation of Likelihood Ratios in Fingerprint Identification for Configurations of Three Minutiae," 51 J. FORENSIC SCI. 1255 (2006); Cédric Neumann, Christophe Champod, Roberto Puch-Solis, Nicole Egli, Alexandre Anthonioz, & Andie Bromage-Griffits, "Computation of Likelihood Ratios in Fingerprint Identification for Configurations of Any Number of Minutiae," 52 J.FORENSIC SCI. 54 (2007).

For further comments on statistics, *see, infra* Part II of this Memorandum.

[7]"General acceptance" is the standard of *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923), adopted by Maryland in *Reed v. State*, 283 Md. 374 (1978).

professionals in the field, applying the ACE-V methodology in a competent manner.

It should not be overlooked that even before the OIG Report was released, the fingerprint community as well as individual departments, including the FBI, had already begun to institute procedural changes in an effort to prevent a recurrence of errors of the type that occurred in *Mayfield*. These changes involve added quality control measures, increased documentation requirements, independent verification (in appropriate cases blind verification) as a standard practice, and improved training methods. The OIG Report, in short, does not represent the *current state* of recommended fingerprint methodology.

II. THE COURT IMPROPERLY EVALUATED THE RELIABILITY OF FINGERPRINT IDENTIFICATION BY COMPARISON WITH DNA STATISTICAL MODELS CITED BY DEFENSE EXPERTS. SUCH MODELS NEITHER SHOW GREATER RELIABILITY OF THE DNA MODEL NOR THE UNRELIABILITY OF FINGERPRINT IDENTIFICATION.

1. The Absence of Statistics or Error Rates Does Not Signify Unreliability

Amici recognize that no generally accepted or statistically validated error rates exist for fingerprint identification methodology. Thus, the State's expert testimony that there "is no error rate for ACE-V" (see the Court's Memorandum Decision on p. 25) is correct. To conclude from this fact that fingerprint identification is unreliable, as critics may assert when they vaunt the assumed "superiority" of the DNA statistical model, is an uninformed deduction. The clear definition of the discrete STR loci (and observed alleles) used in forensic DNA profiling allows, in combination with an underpinning composed of a well-documented biological model, an easy computation of the random match probability for a given set of observed alleles from a crime stain in a given reference population.

The ridge detail visible in friction skin patterns, by contrast, is not limited to a small number of easily defined characteristics. The variety of observable ridge detail is so much wider and more numerous that estimation of the probability of their mere occurrence in a population is much harder – some suggest it is impossible – to reduce to a formula.

But Amici urge the Court to recognize that the DNA statistical model neither guarantees accuracy, nor does it constitute the panacean "objective" measure that removes subjectivity from the comparison of known and unknown biological samples. ***DNA statistics do not represent an "error rate" for the DNA method, nor do they establish or guarantee accuracy.***[8] The random match probability the model allows for a given DNA profile represents only an estimate of the probability of occurrence of this profile in a defined population. Its computation requires, as an input, the correct allelic designations, and not some analytical artifacts. This designation step

[8] Within the last month, several instances were reported in the press of problems in DNA analyses which led, in one case, to the closing, for the second time, of the Houston Police Department Crime Laboratory's DNA unit.

depends essentially on examiner professional judgment in the same way a fingerprint examiner assesses the exact nature of observed features in a fingerprint. Furthermore, there is an element of subjectivity in DNA comparison methodology as will soon be explained.

While fingerprint identifications may not have received the benefit of misguided trust that a general public enamored by astronomical figures places in DNA, misidentifications are equally infinitesimally rare considering the millions of comparisons conducted daily on a worldwide basis. Most of these comparisons result in exclusions. Individualizations are, comparatively speaking, rare. Contrary to what critics of fingerprint methodology suggest, the ***establishment of an error rate is also not a prerequisite of science.***

Error rates of a methodology, as opposed to errors by individuals, cannot be calculated through a single measure. There are, however, a significant number of indicators that show the error rate for friction ridge individualizations is very low. Modern courts have recognized this fact. In *United States v. Mitchell*,[9] the court stated, in its footnote 20: "[E]ven if every false positive identification signified a problem with the identification method itself (i.e., independent of the examiner), **the overall error rate still appears to be microscopic**." [Emphasis supplied.]

There exist at least three indicators other than statistics establishing a low error rate for fingerprint methodology:

(1) Past Experience: It is true that the long history of fingerprint use does not, of itself, establish its reliability. It nevertheless constitutes a significant factor that cannot be ignored. While there have been errors made by individual practitioners, the very low number of genuine wrong individualizations is a reality. The 22 cases of "errors" which Cole describes,[10] are not "the tip of the . . . iceberg," but are a fair representation of the actual number of such cases. When seen in the light of the hundredths of thousands of analysis conclusions reached yearly, the error rate turns out to be minuscule, indeed, effectively close to nil. The errors, to which Cole and the defendant point, occurred nationally over almost a century of casework. During that same time period, an innumerable number of uncontested correct individualizations were made. Many such identifications were routinely **independently** verified, some even through blind verification, before the current rule of the profession initiated the requirement of independent verification. More on this subject *infra*.

(2) Statistical Studies: Over the years, and particularly in the past six years, an impressive number of studies have been completed by highly credentialed research scientists in calculating fingerprint frequency feature frequencies and the likelihood of erroneous associations.[11] While

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[9] 365 F.3d 215, 240 (3rd Cir. 2004), cert. denied 543 U.S. 974 (2004).

[10] Simon Cole, "More Than Zero: Accounting for Error in Latent Fingerprint Identification," 40 J. CRIM. LAW & CRIMINOLOGY 985 (2005). He states, at 991, "An analysis of these cases shows that they are most likely only the tip of the proverbial iceberg of actual cases of fingerprint misattribution."

[11] For a list of earlier statistical studies, see David A. Stoney & John Thornton, "A Critical

older calculation methods were subject to study-design limitations and criticism because of the difficulty of accounting for the immense diversity of ridge structure detail in actual case work, they invariably show an extremely low potential error rate. The more recent models are preferred, because they consider both within-person variability (tolerances) and between-person variability.

(3) Proficiency Testing: While proficiency testing does not provide an ideal measure of validity in that it does not always compare to casework, the output of such testing, if the testing was done in controlled settings, gives an adequate measure of global performance within the profession. Even though errors are reported, they are few.[12] Indeed, their number is not great compared to other forensic disciplines. Furthermore, some critics of fingerprinting frequently count as "errors" those situations where a more conservative or less experienced examiner reaches an "inconclusive" opinion while a more experienced examiner determines individualization has been achieved. We submit it is inappropriate, indeed intellectually disputable, to characterize "inconclusive" conclusions by cautious and perhaps overly conservative examiners as "errors." Amici submit that the only true error by examiners being tested occurs when an individual being tested makes an incorrect attribution of a latent impression.

Analysis of Quantitative Fingerprint Individuality Models," 31 J. FORENSIC SCI. 1187 (1986) and 31 J. FORENSIC SCI. 216 (1987); David A. Stoney, "Measurement of Fingerprint Individuality," in Henry C. Lee & R. E. Gaensslen, ADVANCES IN FINGERPRINT TECHNOLOGY, 2nd ed., CRC Press, Boca Raton, 2001, at 327.

For more modern works, *see* Anil K. Jain, Sharath Pankanti, "On the similarity oof identical twin fingerprints," 35 PATTERN RECOGNITION 2653 (2002); S. C. Dass, Y. Zhu * Anil Jain, "Statistical models for assessing the individuality of fingerprints," FOURTH *IEEE* WORKSHOP ON AUTOMATED IDENTIFICATION ADVANCED TECHNOLOGIES, 3 (2005); C. Neumann, Christophe Champod, R. Puch-Solis, D. Meuwly, Nicole Egli, A. Anthonioz *et al.*, *op. cit, supra* note 6; Cedric Neumann, Christophe Champod, Roberto Puch-Solis, Nicole Egli, Alexandre Anthonioz, & Andie Bromahe-Griffits, *op. cip, supra* note 6; Nicole Engli, Christophe Champod & Pierre Margot, "Evidence evaluation in fingerprint comparison and automated fingerprint systems – modeling within finger variability," 167 FORENSIC SCI. INT'L 167 (2007); E. Gutierrez V. Galera, *et al*., "Biological variability in the minutiae in the fingerprints of a sample of the Spanish population," 172 FORENSIC SCI. INT'L 98 (2007); Anil Jain, Y. Chen & M. Demirkus, "Pores and ridges: high resolution fingerprint matching using level 3 features," PATTERN ANALYSIS AND MACHINE INTELLIGENCE, *IEEE* TRANSACTIONS 15 (2007); Nalini Ratha & Ruud Bolle, eds. AUTOMATIC FINGERPRINT RECOGNITION SYSTEMS (Springer-Verlag), 2004.

[12]Kasey Wertheim, Glenn Langenburg, & Andre Moenssens, "A Report of Latent Print Examiner Accuracy During Comparison Training Exercises," 56 J. OF FORENSIC IDENTIFICATION 55 (2006); Lynn Haber & Ralph N. Haber, "Error Rates for Human Latent Fingerprint Examiners," in Nalini Ratha & Ruud Bolle, eds., *op. cit. supra* note 11; Simon A. Cole, "The Prevalence and Potential Causes of Wrongful Conviction by Fingerprint Evidence," 37 GOLDEN DATE U.L.REV. 39 (2006).

In addition to the observations made above, Amici urge the Court to recognize that not all fingerprint comparisons present the same level of complexity. In making an admissibility decision in an individual case, Amici recommend courts also take into account the merit and richness of detail of the latent print(s) involved. Richness of detail always drastically reduces the risk of error.[13] While images of the specific evidence in *State v. Rose* were not before the Court in its Memorandum Decision, Amici cannot fail to remark that at least one *Rose* case latent print is far richer in detail than the impressions which sparked the erroneous identification in *Mayfield*. Following the analysis phase of the ACE-V comparison methodology, this *Rose* latent print would most definitely be characterized as being on the "safe" side of clarity, and miles away from the Madrid bombing latent print.

2. The ACE-V Methodology Supports Reliable Identification Conclusions

The Court incorrectly infers from the OIG Report that the erroneous Mayfield identification was caused by faulty or inadequate ACE-V methodology. That is not the OIG Report's conclusion. Indeed, it stated explicitly, in Executive Summary, Page 6, Section IV, A, that the primary cause of the error was practitioner error. The Report expressly found that "the examiners committed errors in the examination procedure, and that the misidentification could have been prevented through a more rigorous application of several principles of latent fingerprint identification."[14]

The Report's statement clearly identifies practitioner error in the application of ACE-V Methodology, particularly in the Analysis phase. The error would have been prevented had there been a more rigorous adherence to the ACE-V's analysis protocol, the one-dissimilarity rule, and the SWGFAST Standards for Conclusion. Thus, the OIG Report recognized that had the ACE-V methodology been properly applied, the *Mayfield* error would not have occurred. The cause of misidentification was, thus, specific to the *Mayfield* prints in question and to the examiners performing the examination.

Further, and contrary to what the Court's Memorandum Decision implies on p. 5, in identifying the causes of the *Mayfield* error, the OIG Report did not "provide a unique and comprehensive analysis of defects in current latent fingerprint methodology." In identifying the causes of the *Mayfield* error, the OIG Report made recommendations as to internal FBI improvements that could or should be made. Nowhere in the OIG Report is it stated or implied that the ACE-V method is defective or unreliable.[15] Indeed, it was by the correct application of

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[13]The *Mayfield* case latent prints can be observed at http://www.onin.com/fp/problemidents.html#madrid

[14]United States Department of Justice, Office of the Inspector-General–Oversight Review Division, A REVIEW OF THE FBI'S HANDLING OF THE BRANDON MAYFIELD CASE, Washington, D.C., 2006 [referred to herein as OIG Report]. Also, in Chapter 4 of the OIG's "Assessment of the Causes of the Fingerprint Misidentification," at 194, and Chapter 7, Conclusion, at 269.

[15]It is also factually incorrect to infer from the OIG Report that the FBI examiners were aware of Mayfield's Muslim faith and that this knowledge influenced the examiners. The Report

the ACE-V method that the *Mayfield* error was detected and recognized internally by the FBI Latent Print Unit, and thereafter by the broader fingerprint community.

While it is correct, as the Court states on page 9 of its Memorandum Decision, that the "biological science concerning fingerprints is different than the 'science' or practice of latent fingerprint examinations" it is not correct to assume that one has no bearing on the other. The ACE-V process for analysis, comparison and evaluation relies on the biological uniqueness premise of all friction ridge skin, a premise accepted world-wide to allow a trained examiner to distinguish between impressions from different sources and to form an opinion, under specific circumstances, on the individualization of others. Many attempts have been made to falsify the premise of uniqueness. That is the essence of the many twins' studies and comparisons of their fingerprints which have been conducted over many years; it is also the essence of operational experience and statistical models that were developed by various researchers.

The individualization decision is an opinion formed by a trained examiner at a particular stage of the ACE-V process. It is based on the apprehension of the nature, the quality and the quantity of details which are present in the latent and in the control prints. Thus, the ACE-V method can be applied reliably in cases where only a small portion of a total fingerprint is visible in a latent impression, as long as sufficient quantity and quality of detail is present in the latent impression. The ability to engage in such analysis is but one factor of the immense variety of ridge detail that nature provides. "Sufficiency" determinations depend on the skill and experience of an examiner, as is the case with all professions offering expert conclusions and opinions in courts.

Despite the fact that fingerprint examiners are generally not reporting statistical calculations in casework because of the variety of features present in each comparison – which in the case of DNA are sometimes erroneously perceived or presented as being fully "objective" criteria – there is "general acceptance" in the community of latent fingerprint examiners throughout the world, and in the courts, that a valid individualization can be made on a partial and incomplete latent impression provided sufficient quantitative and qualitative detail is present. Independent scientists, sometimes critical of some phases of fingerprint methodology, have similarly agreed.[16]

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In further examining ACE-V methodology, the Court appears to draw a number of other conclusions which are perhaps more the result of effective advocacy by critics and defense attorneys than fact. To address but a few:

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recognized that the examiners were unaware of this fact at the time of the identification and verification. Therefore, the Muslim faith knowledge was not a contributing factor to the error. That knowledge did not come to the examiners until a month later.

[16]Scientist, experienced fingerprint examiner, and researcher David Stoney, PhD, when testifying for the defense in *United States v. Mitchell*, *supra* note 9 at 252, footnote 29, agreed that even small areas of friction skin are unique.

1. Subjectivity vs Objectivity

Fingerprint comparison methodology is fully compatible with DNA comparison methodology. Indeed DNA technicians apply similar principles. Applying an element of informed judgment during the analysis of the output (called EPG) of a DNA sequencer to designate properly what is a true detected allele from what is in the background or considered as an artifact is very similar to the approach applied by a fingerprint examiner to analyze a latent print and decide what is the relevant signal to be used in the comparison process as opposed to the background noise.[17]

Hence, in applying the DNA protocol, it is accepted that there is a considerable element of examiner judgment involved in the evaluation of DNA output, especially when biological mixtures of more than one individual are present or when the quantity of DNA is very low.[18] Thus, in being required to make some subjective determinations, fingerprint examiners are not different from DNA examiners. The only major difference between the two is that DNA examiners systematically use random match probability calculations to assess a case, whereas fingerprint examiners tend to shy away from numbers that are not embracing the full spectrum of features used in the comparison process. But science nowhere asserts that subjectivity has no place in scientific expert evaluations.

Fingerprint examiners have traditionally expressed caution in using numbers precisely because they have been trained to assess subjectively. The "tyranny of numbers" has never been the fetish in the fingerprint world that it seems to be among legal academicians, the bar and some courts. It is possible to conduct probability calculations on several bases, as was indeed done by scientists retained by the FBI.[19] There have been many other recent statistical studies on partial

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[17]John S. Buckleton *et al.*, FORENSIC DNA EVIDENCE INTERPRETATION, CRC Press, 2004, pp. 235-291.

[18]Richard O. Lempert, "The Honest Scientist's Guide to DNA Evidence," in Bruce S. Weir (ed.) Human Identification: The Use of DNA Markers, Vol. 4 (Dordrecht, 1995) pp. 119-124: ". . . The honest scientist recognizes that she herself is a test instrument, and a fallible one at that. Subjectivity inescapably enters into any human endeavor, and should not be denied. DNA testing is rife with subjective elements, no place more so than at the crucial stage of deciding whether a match exists. [. . .]: (at 119).

It is standard quality assurance practice for DNA analysts that the allelic designation be confirmed by an independent analyst. The empirical rules used for designating alleles are documented. (For fingerprint examination, the work by the European Working Party under INTERPOL is similar.) These rules have been encapsulated in expert systems giving the analyst second independent allele calls. The expert systems have been assessed by the National Institute of Justice under the NEST program (http://forensics.marshall.edu/NEST/NEST-Intro.html). The principle remains: each allele designation must be verified to account for the difficulties of judgment that some DNA profiles may present, such as low-copy-DNA, DNA mixtures, etc.).

[19]Lockheed Martin scientists were asked to perform statistical studies, though they did not prepare a report for publication. *See*, Henry C. Lee and Robert E. Gaensslen, eds.,

latent print comparisons, done by respected research scientists and published in the peer review literature.[20] It is erroneous to assert no scientific validation of fingerprint comparison outcomes have been conducted using statistical models. The recent studies of statistical evaluation of partial latent print impressions show that the discrimination offered by partial fingerprints is very high even down to configurations of three minutiae ("points"). The random match probabilities involved compete favorably with DNA profiling. The researchers showed that random match probabilities were in the order of 1 in 10,000 for four minutiae and 1 in 1,000,000 for six minutiae.[21]

If random match probability calculations are (improperly) seen as an "error rate," as DNA statistics are popularly believed to be by the public and the bar, this provides added support to Amici's contention that the "error rate" in fingerprint identification generally, as well as in this particular case, is extremely low. However small the uncertainty, it always exists in science, and we do not assert the contrary. But an expert's expression of a "zero possibility of error" was clearly a sincere expression of his ultimate conclusion of fingerprint methodology's worth to a moral certainty; it in no way represents a calculated probability reflecting mathematical certainty.

That ACE-V is a sound and reliable methodology is attested to by its near-universal adoption in today's worldwide fingerprint community.[22] It is also the method recommended by SWGFAST, and utilized by local, state and federal fingerprint communities.

2. The Existence of Standards

The Court seems to misapprehend the meaning of the OIG Report when Her Honor notes

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ADVANCES IN FINGERPRINT TECHNOLOGY, 2d ed 2001, at 414. Lee & Gaensslen note that testimony about the FBI 50/50 statistical study on partial prints was presented at the *Mitchell* trial, *supra* note 9, by Dr. Donald Ziesig, an algorithmist with Lockheed Martin.

[20] *See*, e.g., Cédric Neumann, Christophe Champod, Roberto Puch-Solis, Didier Meuwly, Nicole Egli, Alexandre Anthonioz *et al.*, "Computation of Likelihood Ratios in Fingerprint Identification for Configurations of Three Minutiae," 51 J. FORENSIC SCI. 189 (2006); Nicole Egli, Christophe Champod & Pierre Margot, "Evidence evaluation in fingerprint comparison and automated fingerprint identification systems–Modelling within finger variability," 167 FORENSIC SCI. INT'L (1-2), 2007 167; Cédric Neumann, Christophe Champod, Roberto Puch-Solis, Nicole Engli, Alexandre Anthonioz & Andie Bromage-Griffiths, "A Computation of Likelihood Ratios in Fingerprint Identification for Configurations of Any Number of Minutiae," 52 J. FORENSIC SCI. 54 (2007).

[21] *Id.*

[22] In *United States v. Llera Plaza*, 188 F.Supp.2d 549, 575-576 (E.D. Pa. 2002) Judge Pollak, in admitting fingerprint testimony based on ACE-V methodology, recognized that, as used by the FBI, the ACE-V method was "essentially indistinguishable" from that used at New Scotland Yard, quoting Allan Bayle, whom Judge Pollak characterized as "this formidably knowledgeable and experienced veteran of the Yard."

that "The Comparison phase of ACE-V is 'the direct side-by-side observation of friction ridge detail in the latent and known prints to determine whether the detail . . . is in agreement . . .' There are no standards or protocols that a comparison be conducted on a particular scale." (Memorandum Decision, at p. 15.) The Court omits the additional OIG Report's language that clarifies the comparison method used is a matter of preference for the examiners.

At that location in the Report, the topic under discussion was the recognition that an examiner has a wide array of tools available to conduct an examination. These tools include a computer screen, magnifiers, and photographic enlargements. All of these methods are acceptable and are part of the tools which an examiner may appropriately select in a particular case, as the OIG Report recognizes. The OIG Report never implies that examination standards do not exist.

3. "One Hundred Percent Certainty" Testimony

The Court finds that the 100-percent certainty expressed by the State's expert has been "persuasively questioned by some academics and defense counsel." (Memorandum Decision at p. 25.) Amici have previously admitted and explained that no mathematical error rates exist for the fingerprint identification methodology, as they equally do not exist to support most other areas of generally accepted expert conclusions. Despite the other indicators of high methodological reliability which Amici have asserted *supra*, we have also recognized there are rare cases where even well-trained individuals have made errors.

When an individual elicits a comment from an expert on the probative value of a particular comparison that resulted in an individualization, a qualified examiner expresses an opinion, as a trained and experienced professional, which courts and fact finders can accept or reject. The opinion relates to the level of confidence of the examiner in the conclusion that a given latent print impression was made by the friction skin of a particular person ***in an individual case***. The expert's opinion is reached (1) by a rigorous application of all ACE-V methodology steps, and (2) depends on the selectivity of the observed features in both the latent and comparison print.

After all ACE steps have been completed, the conclusion reached by the expert on the likelihood of duplication of the same observed features in the general population is recognized to be so low that the probability of a wrong association is considered negligible and, at present, is considered as nil by both the examiner and supported by the body of structured research conducted in this area. Such testimony in no way implies a mathematical calculation or the possibility of error, nor does it purport to represent a measurable fact. There is a profound difference between certainty levels and error rate levels. Fingerprint experts simply express their expert opinion in the time-honored way that expert opinions have always been elicited in court.

That latent print examiners have been strongly discouraged from arriving at "possible" or "tentative" conclusions, but should either declare that there is (1) an exclusion, or (2) an individualization, or (3) that insufficient data to form a firm conclusion exists, bespeaks of a

conservative attitude among identification professionals for the human consequences that follow an individualization of a latent fingerprint in a criminal case, and a concern that fact finders in trials not overvalue opinions that are expressed with a lesser degree of confidence. While many other forensic disciplines offer qualified opinions, the fingerprint community as a whole has traditionally considered the eschewing of qualified opinions as a strength, not a weakness.

Indeed, most examiners would feel at ease to express an opinion as to the definite source of a latent impression, but would refrain from providing an informed judgment in terms of likelihood of common or different sources. It may well be that, at some time in the future, the development of well-tested statistical models as discussed *supra* will provide the necessary tools whereby fingerprint professionals may utilize a spectrum of conclusions, similar to those used in other forensic disciplines. Such tools have not been generally accepted by the profession. And rightfully so, not because statistical models do not exist, but because they lack the prerequisite testing for proving or falsifying their reliability in actual case work. As new advances provide improved statistical probability models their reliability must be scientifically and operationally scrutinized prior to their general acceptance in case work. The entire professional fingerprint community continues to encourage and promote such additional research.

4. The Absence of Documentation of Analysis; Its Effect on Verification

The Court misapprehends the OIG Report by stating that the "ACE-V methodology does not require the examiner to create a written record of the analysis" and emphasizes that "preparing a written Analysis prior to Comparison promotes objectivity . . ." (Memorandum Decision at p. 14.) In support of that statement, the Court cites the OIG Report which, at page 107, quotes "respected expert David Ashbaugh." The Court fails to include Ashbaugh's qualification that such a record of analysis be done "in certain cases," in which Ashbaugh refers to complex latent print comparisons with distortions and other qualitative issues. Ashbaugh never asserts that this is necessary in all cases, despite the fact that the fingerprint profession has been increasing its documentation recommendations for some time. One testament to this is an ongoing project of SWGFAST to complete a proposed standard on latent print case documentation. And indeed, in the case before the court, notes that captured the areas of concern as described by Ashbaugh were taken contemporaneous with the blind verification examination. This represents a documentation process which the state's witness has since implemented as a standard procedure.

Extensive documentation is certainly not necessary for comparisons involving high quality and large quantity of information. Nor does Ashbaugh state or imply that without this documentation the examination is unreliable. Indeed, the very power of the ultimate conclusions in a fingerprint individualization is such that, because of the non-destructive nature of its practices and the preservation of the latent and comparison prints, a reanalysis by another expert will forever be possible.

The purpose of case documentation, as defined by ASCLD-LAB and required for obtaining laboratory accreditation, is that the documentation be sufficient so that another

competent examiner can determine what was done and what result was obtained. It does not require that the documentation state why or how the examiner progressed in his or her analysis, comparison, and evaluation. Its purpose is not to permit non-expert lawyers or courts to decide whether they will agree with the technical methods used and conclusions reached by an examiner simply by reading that examiner's report. It is simply so that a verification can be conducted by an independent and qualified examiner.

Indeed, an examiner who is asked to verify another examiner's comparison of fingerprints would not want to see the information the defense is calling for in case documentation prior to conducting their own analysis, comparison and evaluation. To follow an examiner's step-by-step consideration of all analysis factors, comparison criteria, and evaluation thoughts, would indeed be most biasing for the verifier. This is to be avoided at all cost, and the fingerprint community has so asserted vigorously since some research suggested examiner bias may influence the outcome of a comparison, as it did in the FBI's *Mayfield* misattribution.

III. CONCLUSION

There is no legal requirement known to Amici compelling a litigant proffering expert testimony to prove that an expert's conclusion is correct. All that is required it that it rests on a sound factual basis. The United States Supreme Court recognized that "it would be unreasonable to conclude that the subject of scientific testimony must be "known" to a certainty; arguably there are no certainties in science. . ." (Justice Blackmun's opinion for the Court in *Daubert v. Merrell Dow Pharmaceuticals*.[23])

Over a century of experience has established fingerprint identification as a reliable method of distinguishing human beings. Impressive research by many non-law enforcement-connected scientists throughout the world, beginning with Sir Francis Galton in the 1890s and continuing through this date, not only has continually confirmed the individuality and persistence of friction skin, but also the ability of well-trained individuals to apply these principles to the individualization of partial latent fingerprints. Many United States university-connected scientists, and scientists everywhere, have indeed been and continue to be on the forefront of that research, as they have been for most of the past century. During that entire period, and despite attempts to falsify the premises underlying the ability of experts to individualize latent prints reliably, the premises have never been shown to be incorrect. We urge the Court not to ignore such impressive research.

To be sure, individuals may make mistakes. They may be either incompetent or ignore the strictures of a rigorous application of ACE-V methodology in casework. But such errors are indeed very rare in the real world.

To be sure, there is also still plenty of ongoing research being conducted by highly

[23] 509 U.S. 570, 590, 113 S.Ct. 2786 (1993).

respected academics that has not yet been completed.[24] It is being carried out world-wide at universities and only demonstrates that the fingerprint community follows the true path of science in its willingness to subject established beliefs to continual verification and peer review.

But to postpone admission of fingerprint evidence because all of the research that is being undertaken has not been completed would, in the words of erstwhile fingerprint critic Judge Louis Pollak of the United States District Court for the Eastern District of Pennsylvania, in his reconsideration and reversal of his earlier decision to exclude fingerprint evidence, be to "make the best the enemy of the good."[25]

We thank the Court for considering Amici's memorandum. Below please find a list of our names, academic degrees and, for identification purposes, our principal affiliations and credits.

February, 2008.

(In alphabetical order)

Brig. General (ret.) Joseph Almog, Ph.D., Professor of forensic chemistry, Casali Institute of Applied Chemistry, The Hebrew University, Jerusalem 91904

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[24] *E.g.*, Garrison, "Research–This one word is pushing the understanding of fingerprint examination to new levels of credibility and validity," EVIDENCE TECHNOLOGY MAG., May-June, 2007, at 14. The author is exploring the research is Dr. Sargur N. Srihari, Distinguished Professor of Computer Science and Engineering for the State University of New York (SUNY) at Buffalo. Dr. Srihari's ongoing study is known as a "Quantitative Assessment of the Individuality of Friction Skin Patterns" and focuses, *inter alia*, on the quantity and quality of friction ridge data that must be present for accurate matching. The article also refers to other ongoing studies recommended by SWGFAST, including some in which several of the present Amici are engaged.. It further quotes Dr. Srihari as stating "the argument that fingerprint examination is not scientific is false." A recent published study by this group regarding the discrimination of fingerprints from twins concluded *inter alia* that: "the net result of the findings is that the argument for the individuality of fingerprints is strengthened." Sargur N. Srihari, Harish Srinivasan & Hang Fang, "Discriminability of Fingerprints of Twins," 58 J. FORENSIC IDENTIFICATION 109, at 125 (2008).

UNIL, Switzerland, an internationally respected research university, is currently funded by the National Institute of Justice (NIJ) and the Technical Support Working Group (TSWG) to develop a topological model to assess the evidential value of partial fingerprints. The research will conclude in November, 2008. It follows up on earlier research initiatives.

[25] *United States v. Llera Plaza*, 188 F.Supp. 2d 549, at 572 (E.D. Pa., 2002).

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Claude Roux, Ph.D., Professor of Forensic Science, Director of the Centre for Forensic Science, University of Technology, Sydney, Australia; researcher in fingerprint detection; member of the International Fingerprint Research Group.

John R. Vanderkolk, B.A., in Forensic Studies and Psychology; Manager, Indiana State Police Laboratory, Fort Wayne, IN.; researcher on fingerprint expertise, researcher on comparative identification models. Member of SWGFAST.

"The opinions of the signatories of this Memorandum expressed herein do not necessarily state or reflect those of their respective affiliations"

7/27/09

United States v. Bryan Keith Rose
CCB 08-149

Fingerprint Case Summary Chart

Case/crime	***Daubert* Hearing? (yes/no)**	***Ruling on Admissibility of Fingerprint Evidence (Admitted/excluded)***
US v. Crisp, 324 F.3d 261, 266-69, 207-71 (4th Cir. 2003) (*cert denied* 540 U.S. 888 (2003) (armed robbery)	No	**Admitted** (court analyzed methodology in framework of *Daubert* factors and denied challenge to fingerprint evidence; recognized it to be a long time "generally accepted" form of expert evidence; the methodology includes requisite standards that control the technique's operation; defense can raise weaknesses on cross-examination)
US v. Rogers, 26 Fed.Appx. 171, 173, 2001 WL 1635494 (C.A.4 (N.C.)) (false claim to Treasury Dep't)	No	**Admitted** (denied *Daubert* challenge to fingerprint methodology; fingerprint analysis testimony is subject to vigorous cross-examination. "**Many courts have refused to hold an evidentiary hearing for an inquiry into the reliability of fingerprint analysis."** (*Havvard*, *Sherwood*, *Reaux*, *Joseph*)).
US v. Dulaney, 48 Fed.Appx. 66 (4th Cir. 2002) (robbery)	No	**Admitted** (denied *Daubert* challenge to admissibility of Government's fingerprint expert; methodology satisfies *Daubert* factors; relies on *Havvard* and *Llera Plaza II*)
US v Campbell, 88Fed.Appx. 580 (4th Cir. 2004)	No	**ADMITTED** (added June 20, 2008) (Following *Crisp*, affirmed district court's admission of fingerprint evidence under *Daubert*)
US v. Gary, 85 Fed.Appx. 908, 909 (4th Cir. 2004) (armed robbery)	No	**Admitted** (denied *Daubert* challenge; followed *Crisp*—methodology of latent fingerprint examination has ably withstood the test of time and is reliable
US v. Vargas, 471 F.3d 255, 265-66 (1st Cir. 2006) (Possession of fraudulent identification)	No	**Admitted** (denied *Daubert* challenge)

US v. Stevens, 2007 WL 756401 (C.A. 2 (N.Y.) (March 2007) (bank robbery)	No	**Admitted** (not an abuse of discretion to refuse to conduct *Daubert* hearing on fingerprint evidence; *Daubert* hearing is not required in ordinary cases where the reliability of an expert's methods is properly taken for anted)
US v. Mitchell, 365 F.3d 215, 244 (3rd Cir. 2004) (robbery, fingerprints on getaway car)	Yes	**Admitted** (Includes detailed *Daubert* analysis of methodology of latent fingerprint identification. "As long as an expert's scientific testimony rests upon 'good grounds, based on what is known,' it should be tested by the adversary process-competing expert testimony and active cross-examination-rather than excluded from jurors' scrutiny for fear that they will not grasp its complexities or satisfactorily weigh its inadequacies.")
US v. Byrd, 208 Fed. Appx. 145 (3rd Cir. 2006) (Dec.2006) (bank fraud—latents found on checks)	Yes	**Admitted** (applied *Mitchell/Daubert* to admit latent fingerprint identification methodology; defense could challenge evidence through cross-examination)
US v. Faines, 216 Fed.Appx. 227, 230 (3rd Cir. 2007) (armed robbery)	No	**Admitted** (Disallowed as irrelevant proposed defense "expert" testimony as to validity of latent fingerprint methodology; court properly excluded proposed testimony of defense "expert" Lyn Haber)
U.S. v. Turner, 201 Fed.Appx. 270 C.A.5 (Miss.),2006. October 03, 2006	NO	**Admitted (added 6/17/08)** (Government's witness possessed sufficient qualifications to be considered an expert in fingerprint examination and that his testimony was reliable and relevant. The district court did not abuse its discretion in allowing the testimony.)
US v. Hernandez-Rodarte, 2005 WL 1489083 (C.A.5 (Tex.)) (illegal reentry)	No	**Admitted** (Admitting government expert's testimony as to identification of latent fingerprint where "Government presented evidence to show that [examiner] was an expert in the area of fingerprint analysis and that his testimony was reliable and relevant to the issue of the defendant's true identity [thus satisfying] the objective of *Daubert* to ensure the reliability and relevance of the expert testimony."
US v. Stone, 218 Fed. App. 425 (6th Cir. 2007) (Narcotics Trafficking)	No	**Admitted** (In relying on a forensics technician's training and experience to certify her as an expert, the district court acted well within its boundaries of discretion under FRE 702.)

US v. Harvvard, 260 F.3d 597, 600, 601 (7th Cir. 2001) (firearm possession after felony conviction)	Yes	**Admitted** (Finding that latent fingerprint methodology satisfied *Daubert* standard's "flexible" factors used for various types of expert testimony in determining the reliability of the proffered testimony. Despite absence of unified objective standard for measuring adequacy of fragmentary latent fingerprint for purposes of identification, latent fingerprint identification satisfied the standards of reliability for admissible expert testimony under *Daubert*; Methods of latent print identification could be and had been tested in adversarial system, results were subject to peer review, and the probability for error was exceptionally low; Noting as well that courts have properly declined to conduct a pretrial *Daubert* hearing on the admissibility of fingerprint evidence.)
US v. George, 363 F.3d 666, 672 (7th Cir. 2004) (counterfeit checks)	No separate hearing	**Admitted** (re-examined and re-affirmed holding in *Havvard* that methodology was generally accepted*;* latent fingerprint analysis satisfied *Daubert*; that methodology has low rate of error and could be objectively tested "was more than sufficient ground to find it admissible under the *Daubert* test")
US v. Glover, 479 F.3d 511 (7th Cir. 2007) (possession heroin, firearm)	No	**Admitted** (Rule 702 procedures were followed correctly and it was proper to admit testimony of fingerprint technician to testify in dual role as technician and as expert to explain absence of prints on firearm)
US v. Collins, 340 F.3d 672 (8th Cir. 2003) (drug case)	No	**Admitted** (followed *Havvard*—methodology of latent fingerprint identification is generally accepted and satisfies *Daubert.* Not error to decline to conduct a *Daubert* hearing prior to admitting fingerprint evidence)
US v. Spotted Elk, 548 F.3d 641, 663 (8th Cir. 2008) (Drug Trafficking)	No	**Admitted** (followed *Collins*, fingerprint analysis is generally accepted, "A *Daubert* hearing is not required when the record already establishes that such testimony is admissible. When the court is satisfied with an expert's credentials it does not abuse its authority when admitting the testimony without a preliminary hearing).
US v. Hernandez, 299 F.3d 984 (8th Cir. 2002) (drug case)	No	**Admitted** (cited *Llera Plaza* II —latent fingerprint methodology satisfies *Daubert's* flexible factors for expert testimony)
US v. Collins, 340 F.3d 672 (8th Cir. 2003) (drug case)	No	**Admitted** (followed *Havvard*—methodology of latent fingerprint identification is generally accepted and satisfies *Daubert.* Not error to decline to conduct a *Daubert* hearing prior to admitting fingerprint evidence)

US v. Janis, 387 F.3d 682, 689-90 (8th Cir. 2004) (possession of firearm by convicted felon)	No	**Admitted** (affirming that fingerprint evidence is generally accepted in expert community and courts, satisfies *Daubert*; follows 4th Cir. in *Crisp)*
United States v. Kenyon, 481 F.3d 1054 ,1061(8th Cir. 2007)	No	**Admitted** A *Daubert* hearing is not required where the record already establishes that the testimony is admissible. When a district court is satisfied with an expert's education, training, and experience, and the expert's testimony is reasonably based on that education, training, and experience, the court does not abuse its discretion by admitting the testimony without a preliminary hearing.
US v. Xian Long Yao, 302 Fed. Appx. 586, 588 (9th Cir. 2008) (Illegal Reentry)	No	**Admitted** (District Court could admit testimony of fingerprint comparison expert as it had heard sufficient evidence of expert's qualifications and experiebce)
US v. Sherwood, 98 F.3d 402, 408 (9th Cir. 1996) (firearm, money laundering)	No	**Admitted** (fingerprint identification testimony satisfies *Daubert's* flexible factors; fingerprint evidence is generally accepted and has been subjected to peer review and publication)
US v. Malveaux, 2000 WL 125917 at 1 (C.A.9 (Cal.)) (bank robbery)	No	**Admitted** (government evidence of latent print identification satisfied *Daubert*; defense challenge to validity of fingerprint comparison is a question of weight and credibility that properly belongs to the jury)
U.S. v. Baines --- F.3d ----, 2009 WL 2139117 (10th Cir.2009) (**Decided July 20, 2009)** (controlled substances)	YES	**Admitted** (Single thumb print) Precisely the same Daubert challenges presented by Rose are addressed in detail. Agent Meagher was the government expert. Evidence of print ID pursuant to ACE-V methodology was found to be relevant and reliable and to meet the requirements of Fed.R.Evid. 702. Addressing the core of defendant's argument, that fingerprint analysis rests substantially on the subjective interpretations of the examiner. The judge said that this argument went to the weight of the evidence, not its admissibility, and she quoted *Daubert's* observation that "[v]igorous cross-examination, presentation of contrary evidence and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." *Daubert*, 509 U.S. at 596.
US v. Navarro-Fletes, 2002 WL 31420123 at 733 (C.A. 9 (Wash.)) (illegal reentry)	No	**Admitted** (latent fingerprint identification methodology satisfies *Daubert*; "relevant community" for *Daubert* purposes includes FBI examiners; *Daubert* is to be applied flexibly to technical and specialized knowledge)

US v. Ambriz-Vasquez, 34 Fed.Appx. 356 (9th cir. 2002) (illegal reentry)	No	**Admitted** (citing *Sherwood*—latent fingerprint methodology satisfied *Daubert*; no hearing required; courts may admit fingerprint evidence without performing *Daubert* hearings; requiring courts to conduct *Daubert* hearings whenever defendants object to fingerprint evidence is a particularly onerous interpretation of their gatekeeping function under *Daubert* and assumes that courts cannot take judicial notice of the general acceptance of fingerprinting analysis)
US v. Rojas-Torres, 2003 WL 21378613 (C.A. 9 (Wash.)) (illegal reentry	Yes	**Admitted** (affirming district court's finding that latent fingerprint evidence satisfied *Daubert*)
US v. Turner, 285 F.3d 909 (10th Cir. 2002) (armed robbery)	No	**Admitted** (affirmed district court's denial of request for *Daubert* hearing and finding that latent fingerprint evidence has always been upheld as reliable and appropriate; challenges to identification or process can be raised on cross-examination; whether to hold *Daubert* hearing is discretionary with the court)
U.S. v. Douglas 489 F.3d 1117 (11th Cir. 2007)	Yes	ADMITTED (district court did not abuse its discretion in admitting fingerprint examiner's opinions. Witness testified to his extensive experience and training in fingerprint analysis, including experience regarding the durability of fingerprints on different surfaces and in different environmental conditions and analysis of fingerprint smudging pressure. With regard to expert's opinions, witness presented sufficient information for the district court to conclude that the methodology by which he reached these opinions was reliable and reasoned).
US v. Abreu, 406 F.3d 1304, 1307 (11th Cir. 2005) (possession w/intent to distribute marijuana)	No	**Admitted** (11th Cir. finds latent fingerprint evidence satisfies *Daubert*; follows 4th , 7th, 8th and 9th Circuits in finding that find fingerprint evidence is proven and reliable; courts have flexibility to give more weight to "general acceptance" factor of *Daubert*)

US v. Salim, 189 F.Supp.2d 93, 100-01 (S.D.N.Y. 2002) (attempted escape from correctional facility)	No	**Admitted** (finding it to be "*without question*" that latent fingerprint analysis has enjoyed a long history of acceptance as a scientifically sound technique for identification and has routinely been admitted as such for the purposes of criminal trials; "This Court finds that the methodology undertaken by the Government's expert ...meets the *Daubert* standard for reliability as the generally - accepted technique for testing fingerprints and that fingerprint comparison has been subjected to peer review and publication. Methodology undertaken by government's latent fingerprint expert satisfies *Daubert* standard for reliability as generally-accepted technique for testing fingerprints." "...Mere fact that an expert utilizes his or her expertise and training to determine whether there is enough agreement of the various print ridge formations to be able to individualize and ultimately, to "match" a print, does not constitute an absence of standards to render the technique unreliable. Rather, the methods of comparison are in fact testable such that both parties can subject prints to verification. The appropriate attack of an expert's "match" opinion is in rigorous cross-examination and the presentation of other experts to challenge the findings, not the whole-sale preclusion of a reliable methodology.")
US v. Frias, 2003 WL 296740, *modified in part* 2003 WL 352502 (S.D.N.Y.)	No	**Admitted** (Defendant was not entitled to pre-trial *Daubert* evidentiary hearing to determine admissibility of expert testimony on issue of fingerprint identification, where testimony was based upon well-established scientific principles; noting that numerous circuit and district courts have permitted fingerprint examiners to state their opinions and conclusions; numerous defendants have challenged the reliability of fingerprint evidence, but courts have universally rejected these challenges; cross-examination remains available to defendant)
US v. Mahone, 2008 WL 504012 at 3-4 (D.Me.) (attempted bank robbery— **footwear impressions evidence**)	Yes	**Admitted** (finding ACE-V methodology used to identify latent fingerprints and footwear impressions is reliable and satisfies *Daubert*, citing *Mitchell)*;
US v. Cooper, 91 F.Supp.2d 79, 82 (D.D.C. 2000) (racketeer offenses) (fingerprint, ballistics, and medical evidence)	No	**Admitted** (*Daubert* hearing on latent print methodology properly **denied**- because not required by *Daubert* or *Kumho* when the challenged evidence does not involve any new scientific theory and the jury should decide the pertinent questions of whether the expert properly applied the established scientific principle to the facts; FRE 104(c) required evidentiary hearings on admissibility of evidence when the interests of justice require; would be time-consuming to conduct pre-trial hearing)

US v. Joseph, 2001 WL 515213 (E.D. La. 2001)	No	**Admitted** (*Daubert* hearing on latent print methodology properly **denied**; finding that fingerprint evidence is a reliable science and defendant did not show that the relevant scientific community does not generally accept the technique; cross-examination is available to defendant reveal any weaknesses)
US v. Llera Plaza, 188 F.Supp.2d 549 (E.D. Pa. 2002) (drug conspiracy and murder) (*Llera Plaza II*)	Yes	**Admitted** (FBI Examiner Steven Meagher is among government experts) (Extensive *Daubert* analysis; judge's reconsideration concluded: ACE-V methodology is a "technical discipline," for purposes of admitting evidence of similarities between latent fingerprints and exemplars that satisfies *Daubert;* "Though conclusion of examiner is by nature subjective, there are many situations in which an expert's manifestly subjective opinion, based on "one's personal knowledge, ability and experience" is regarded as admissible evidence in an American courtroom" Court found that the ACE-V process employed by New Scotland Yard is essentially indistinguishable from the FBI's ACE-V process, and that "ACE-V regime that is sufficiently reliable for an English court is, I conclude, a regime whose reliability should, subject to a similar measure of trial court oversight, be regarded by the federal courts of the United States as satisfying the requirements of Rule 702 as the Supreme Court has explicated that rule in *Daubert* and *Kumho Tire*.")
Li v. Phillips, 358 F.Supp.2d 135 (E.D.N.Y. 2005) (burglary)	No	**Admitted** (fingerprint analysis has long been accepted in the scientific community and is regularly admitted into evidence in NY criminal proceedings; there was nothing novel about the methods used to collect and analyze the evidence; the deficiencies in procedure that defendant raised were relevant to credibility and not admissibility under *Frye*; defendant has recourse through cross-examination)
US v. Reaux, 2001 WL 883221 at 1 (E.D.La.) (armed robbery)	No	**Admitted** (**denied** request for *Daubert* hearing; latent fingerprint identification methodology satisfies *Daubert*)
US v. Nadurath, 2002 WL 1000929 (N.D.Tex.)	No	**Admitted** (**denied** request for *Daubert* hearing; latent fingerprint identification evidence satisfies *Daubert*)

State v. Armstrong 920 So.2d 769 Fla.App. 3 Dist.,2006.		For over a hundred years, fingerprint comparison has been accepted as reliable by every court in the nation and in many courts abroad for the purpose of identification. In Florida, fingerprint evidence has been admissible in criminal prosecutions since at least 1930. *See Martin v. State*, 100 Fla. 16, 129 So. 112, 116 (1930)("Experience of recent years has shown that one of the most effective means of identifying and apprehending burglars, robbers, and thieves is through bureaus of identification by using the photograph and finger print. This method should be encouraged so long as its application does not result in a miscarriage of justice or violate fundamental rules of evidence."). To date, there have been no reported instances in which the prints from any two fingers or from two individuals have been found to be the same. Of late, a spate of challenges to the reliability of fingerprint identification has been brought, primarily in the federal courts, premised on the same "informed hypothesis" advanced here. Each has been rejected. *See, e.g., United States v. Abreu*, 406 F.3d 1304, 1307 (11th Cir.2005)(agreeing with the decisions of other federal circuits and holding latent fingerprint evidence reliable); *United States v. Mitchell*, 365 F.3d 215, 246 (3d Cir.2004)(holding latent fingerprint identification evidence reliable and thus admissible under Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993) [FN4]); *United States v. Janis*, 387 F.3d 682, 690 (8th Cir.2004)(finding fingerprint evidence to be reliable); *United States v. Crisp*, 324 F.3d 261, 269-270 (4th Cir.2003)(holding fingerprint analysis to be reliable identification evidence); *United States v. Havvard*, 260 F.3d 597, 601-02 (7th Cir.2001) (finding fingerprint identification to be reliable); *United States v. Sherwood*, 98 F.3d 402, 408 (9th Cir.1996)(holding that the trial court did not commit actual error in admitting fingerprint evidence).
US v. Cromer, 2006 WL 1430210 (W.D. Mich.) May 2006	No	**Admitted** (No *Daubert* hearing; court follows *Mitchell*, admits evidence and denies motion to exclude latent fingerprint testimony contending that the "methodology behind finger print identification is not scientifically reliable and therefore does not pass muster under the standards established by the Supreme Court in *Daubert* and required by Rule 702; Court had presided over multiple trials where fingerprint evidence has been introduced based on the qualifications of the witness and testimony evidencing the reliability and scientific credibility of that evidence)
US v. Jones, 2007 WL 4404679 at 5 (E.D. Tenn.) December 2007	No	**Admitted** (denied motion for *Daubert* hearing*;* proposed expert testimony as to ability to recover latent prints from firearm satisfied *Daubert*; nothing unusual or complex about the proffered latent fingerprint expert testimony; defendant has opportunity to cross-examine)

People v. Hyatt, 2001 WL 1750613 (NY)	Yes (Frye hearing)	**Admitted** **Excluded proposed testimony of Rose defense "expert" Simon Cole as "junk science"** (defense expert Cole not to be a scientist; is historian and social scientist; not qualified to give testimony on fingerprint comparison, court takes judicial notice that fingerprint identification has long been recognized and accepted by courts in US; testimony concerning its use is always admissible provided the proffered witness is qualified as an expert in the field)
US v. Cline, 188 F.Supp.2d 1287, 1294 (D.Kan. 2002) ; *Affirmed by* *U.S. v. Cline*, 349 F.3d 1276 (10th Cir. 2003). (drug trafficking)	No	**Admitted** (denying defendant's motion to exclude fingerprint evidence under *Daubert;* hearing unnecessary since the reliability of methodology of latent fingerprint examination could be properly taken for granted; court satisfied that general fingerprint identification analysis clears the threshold of reliability under FRE 702 after considering all relevant factors, including those from *Daubert;* shortcomings of ACE-V are more prudently treated as matters going to the weight of the evidence; Relied on *Havvard*, *Rogers*, *Reaux*, *Joseph*, *Martinez-Cintron* ; Criticism of fingerprint evidence and irritation with the conclusiveness of fingerprint examiners' opinions does not justify being overly pessimistic of methodology; experts of all kinds tie observations to conclusions through the use of "general truths derived from ... specialized experience" ... whether the specific expert testimony focuses upon specialized observations, the specialized translation of those observations into theory, a specialized theory itself, or the application of such a theory; " idea that fingerprint comparison is not sufficiently "scientific" cannot be the basis for exclusion under *Daubert)*
U.S. v. Jones 2008 WL 336748 (E.D.Tenn.,2008) February 05, 2008	**NO**	**ADMITTED (added June 17, 2008)** (Daubert hearing is unnecessary because the record contains sufficient evidence to determine the reliability and qualifications of fingerprint expert and the basis for their opinion**).**
NH v. Langill, 945 A.2d 1 (NH 2008), 2008 WL 899256 (theft/burglary) **May 2008**	Yes	**Admitted** **Reversing lower court decision relied upon by Rose in MD** (reverses state trial court which erred in excluding latent fingerprint identification; follows 8th Circuit—whether ACE-V fingerprint methodology was not applied reliably affects weight of evidence, not admissibility; "In the evidentiary context, however, the term "reliable" does not mandate correctness; it signifies a much lower standard, to wit, trustworthiness.... The overall purpose of Rule 702 ...is simply to ensure that a fact-finder is presented with reliable and relevant evidence, not flawless evidence.")