IN THE COURT OF COMMON PLEAS OF WESTMORELAND COUNTY, CRIMINAL DIVISION

COMMONWEALTH OF PENNSYLVANIA Respondent, v. **JOHN KUNCO** Petitioner	)	Case No. 482 Crim. 1991

MEMORANDIUM OF LAW IN SUPPORT OF WRIT OF HABEAS CORPUS AND FOR COLLATERAL RELIEF FROM CRIMINAL CONVICTION PURSUANT TO THE POST-CONVICTION RELIEF ACT, 42 Pa. C.S. § 9541 *ET SEQ*.

Petitioner, John Kunco, hereby submits his Petition for Writ of Habeas Corpus and For Collateral Review from Criminal Conviction Pursuant to the Post-Conviction Relief Act, 42 Pa. C.S. § 9541 *ET SEQ*. His Petition is presented in good faith and premised on the following facts and points of authority.

Respectfully submitted this 17th day of April 2009.

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I. Introduction

The central purpose of a criminal trial is "to discover the truth." *Portuondo v. Agard*, 529 U.S. 61, 73 (2000) (noting that "the central function of the trial... is to discover the truth.").[1] Discovering the truth is necessary so that the "twofold" purpose of justice–i.e., convicting the guilty and exonerating the innocent–can be attained. *See Berger v. United States*, 295 U.S. 78, 88 (1935) (noting that the "twofold aim" of justice "is that guilt shall not escape or innocence suffer."**)**. In order to expose the truth, however, criminal trials must be *premised* not only on *fair procedures* that adequately ensure the truth can and will be uncovered, *see e.g., Crawford v. Washington*, 541 U.S. 36 (2004) (right to cross-examine adverse witnesses); *Banks v. Dretke*, 540 U.S. 668 (2004) (right to impeachment or potentially exculpatory evidence),[2] but, more importantly, on *accurate and truthful evidence*. Indeed, it is axiomatic that the truth cannot be revealed, that Due Process cannot be honored, and that the innocent cannot be fairly identified when the fact finder is inundated with false, misleading, and unreliable evidence—particularly unreliable scientific evidence. *See Miller v. Pate*, 386 U.S. 1, 5 (1967) ("the Fourteenth Amendment cannot tolerate a state criminal conviction obtained by the knowing use of false evidence"); *accord Napue v. Illinois*, 360 U.S. 264 (1959); *see also Ake v. Oklahoma*, 470 U.S. 68, 82 n.7 (1985) (citation omitted) ("Testimony emanating from the depth and scope of specialized knowledge is very impressive to a

[1] *See also Delaware v. Van Arsdall*, 475 U.S. 673, 681 (1986) ("the central purpose of a criminal trial is to decide the factual question of the defendant's guilt or innocence"); *United States v. Nobles*, 422 U.S. 225, 230 (1975).

[2] *See United States v. Leon*, 468 U.S. 897, 900-01 (1984) (recognizing the general goal of establishing "procedures under which criminal defendants are 'acquitted or convicted on the basis of all the evidence which exposes the truth'") (*quoting Alderman v. United States*, 394 U.S. 165, 175 (1969)). These procedural safeguards protect "the innocent from erroneous conviction and ensuring the integrity of our criminal justice system." *California v. Trombetta*, 467 U.S. 479, 485 (1984).

jury. The same testimony from another source can have less effect."). This constitutional principle was clearly established when the Commonwealth prosecuted John Kunco (Kunco) nearly twenty years ago for brutally raping Donna Seaman on December 16, 1990. The Commonwealth, however, debased this bedrock constitutional principle when it premised its entire case on false, misleading, and unreliable bite mark evidence.

During Seaman's brutal assault, her assailant bit her left shoulder. The Commonwealth's bite mark experts did not examine the bite mark until May 1991—five months after the bite was inflicted. Despite the fact the bite mark was no longer visible to the naked eye under normal light conditions because the wound had healed, the bite mark experts utilized a UV-light technique that allegedly exposed the bite mark's unique and individual characteristics. The bite mark experts then compared the UV-lighting photographs of the bite mark to Kunco's bite pattern and concluded that Kunco must have inflicted the bite mark on Seaman's shoulder—to the exclusion of all others. Importantly, both forensic dentists testified that bite mark identification is premised on reliable and valid scientific principles and research and that they could accurately associate an unknown bite mark to a known bite pattern.

Outside the bite mark identification, there was no other direct or circumstantial evidence linking Kunco to Seaman's assault. Indeed, Seaman failed to identify Kunco as her assailant prior to and during trial. Moreover, despite collecting nearly forty items of evidence from Seaman and the crime scene, forensic testing failed to link Kunco to Seaman's assault. Nevertheless, in spite of the paucity of direct eyewitness evidence and circumstantial forensic evidence, the jury hung its hat on the bite mark evidence and convicted Kunco.

Kunco challenged the bite mark evidence during trial, post-conviction, and federal habeas proceedings, but his challenges proved unsuccessful because he lacked independent, objective, and legitimate scientific evidence establishing bite mark identification's unreliability. *E.g., Kunco v. Attorney General of Commonwealth of Pennsylvania*, 85 Fed. Appx. 819 (3rd Cir. 2003). On February 17, 2009, however, this all changed when the National Academy of Sciences (NAS) published a report entitled *Strengthening Forensic Science in the United States: A Path Forward* (NAS Report).

The NAS, which is "the most prestigious scientific organization in the United States,"[3] found serious deficiencies in the nation's forensic science system and that forensic evidence *played a substantial role in an alarming number of wrongful convictions* — particularly bite mark evidence. The NAS also concluded that rigorous and mandatory certification programs for forensic scientists are and have been lacking, as have been strong standards and protocols for analyzing and reporting of evidence. Furthermore, there is a dearth of peer-reviewed, published studies establishing the scientific bases and reliability of many forensic methods–particularly bite mark identification. Finally, many forensic science labs are underfunded, understaffed, and have had no effective oversight for years.

More importantly, while the NAS criticized many forensic techniques and forms of evidence, it issued its harshest criticism at bite mark identification. Indeed, the NAS Report concluded that: (1) there is no evidence of an existing scientific basis for identifying an individual to the exclusion of all others; (2) the scientific basis is insufficient to conclude that bite mark comparisons can result in a conclusive match; (3)

[3] This is a direct quote from the President of the American Academy of Forensic Science (AAFS), Thomas L. Bohan. Mr. Bohan made this comment in a March 15, 2009 email to all the AAFS members. The email is attached hereto as exhibit 1.

no thorough study has been conducted of large populations to establish the uniqueness of bite marks; (4) if a bite mark is compared to a dental cast, and the suspect providing the dental cast cannot be eliminated as a person who could have made the bite mark, there is no established science indicating what percentage of the population or subgroup of the population could also have produced the bite mark; (5) bite mark examiners rarely must undergo proficiency testing; (6) the limited proficiency testing results indicate a substantial error rate; and (7) the elasticity of the skin, the unevenness of the surface bite, and swelling and healing severely limit the validity of bite mark identification.

While the NAS Report focused on the present state of affairs in forensic science and the bite mark community, the report plainly indicates that most of these problems are not recent, but have plagued the forensic science and bite mark communities for decades. Although defendants and defense attorneys have routinely argued that the forensic science community is scientifically bankrupt, neither defendants nor their counsel have had "independent" and "objective" evidence from a "governmental body" to prove this point.[4] Now, however, after years of claiming that the forensic science community is scientifically bankrupt and bite marks are unreliable, the "most prestigious scientific organization in the United States" has finally concluded that this is in fact true. As a result, the NAS Report, which was released on February 17, 2009, constitutes "newly discovered" evidence pursuant to 42 Pa. C.S. §§ 9545(b)(1)(i)&(ii) and gives rises to

[4] For the most part, when defense counsel attacked a forensic expert's testimony as scientifically bankrupt, counsel generally introduced his or her own forensic expert thus leading to the battle of the experts. In such situations, at least under Pennsylvania law, both experts were generally permitted to testify, with the jury being the "ultimate referee" as to which expert was more credible. *See Commonwealth v. Puksar*, 951 A.2d 267, 276 (Pa. 2008) ("The expert testimony offered at trial by both sides amounted to a battle of the experts, with the jury as the ultimate referee based upon its assessment of the credibility of the experts.").

several new state and federal constitutional violations that could not have been raised or litigated earlier by the exercise of due diligence.

II. STATEMENT OF FACTS

A. CRIME AND CRIME SCENE

On December 16, 1990, at approximately 5:00 am, Seaman awoke to let her cat out of her apartment where she lived alone.[5] After letting her cat out, she did not lock the door to her apartment and went back to bed.[6] Shortly thereafter, Seaman awoke and realized a man was standing in her bedroom.[7] Because she is blind in one eye and farsighted in the other, she was unable to capture a good look at the man.[8] The man told her to be quiet and told her she was going to have "the fuckingest day of [her] life."[9] Seaman said he was tall, bearded, and spoke with a lisp.[10]

The man called her a slut and caressed her breasts.[11] Seaman tried to get up but he ripped her nightgown off and forced her back onto the bed.[12] She then yelled for help but he slapped her face so she stopped.[13] He then took one of her girdles and placed it over her head to blindfold her.[14] She was blindfolded throughout the remainder of her attack.[15] The assailant then said he had a knife and threatened her by saying: "[Y]ou know what happens when people have knives."[16] Seaman never actually saw the knife.[17]

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[5] NT at 57. References to the trial transcripts are marked NT (note of testimony).
[6] *Id.*
[7] *Id.* at 58
[8] *Id*. at 87
[9] *Id*. at 58
[10] *Id*. at 58, 79. During cross-examination at trial, she admitted that she failed to mention the man's beard at the preliminary hearing. *Id.* at 58, 90.
[11] *Id*. at 59, 93
[12] *Id*.
[13] *Id*.
[14] *Id.* at 88
[15] *Id*. at 86-88
[16] *Id*. at 92

After striking her, he grabbed her by her hair and dragged her into the bathroom where he forced her to perform oral sex on him.[18] After performing oral sex for 10-15 minutes, the assailant said, "Okay this is not going to work," and dragged her by her hair into the living room, where he ordered her to sit down.[19] Once seated, he punched her in the stomach.[20] She pled with him to stop and he complied.[21] He then dragged her to the hallway right outside of her kitchen where he forced two cucumbers (taken from her refrigerator) into her rectum.[22] He then ordered her to push the cucumbers out of her rectum and, while she was able to force one cucumber out, the second remained lodged inside her.[23]

The assailant dragged her by her hair back into her bedroom where he tried to vaginally penetrate her. He had problems penetrating her and he complained that she was "too tight."[24] Seaman said he penetrated her vagina "just a trifle."[25] He then ordered her to spread her legs. As she spread her legs she heard him cutting something, which was later determined to be the electric cord of a bedroom lamp.[26] He exposed the wires of the lamp cord and pushed them together to create an electrical current; he then forced the wires inside her vagina and anus, electrocuting her.[27] The electrocution, which lasted

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[17] *Id*. at 60
[18] *Id*. at 63
[19] *Id*. at 63, 64
[20] *Id.* at 64
[21] *Id*.
[22] *Id*. at 66, 67.
[23] *Id*.
[24] *Id*. at 68.
[25] *Id*.
[26] *Id*. at 68, 70.
[27] *Id*. at 68, 324-325.

approximately twenty minutes, was very painful and caused her vagina to bleed for several days thereafter.[28]

To evade further pain, Seaman pretended to fall asleep on the bed.[29] The assailant laid next to her for approximately 45 minutes.[30] Shortly thereafter, he forced her to perform oral sex on him again.[31] He forced her to "deep throat" his penis and she felt like she was about to throw up because she was gagging.[32] He forced her to perform oral sex on him twice more while in her bedroom and, after the second time, he said that it was not working and that it was time for him to leave.[33]

The assailant tied her hands with belts from her bathrobes and told her not to move.[34] She remained on her bed for 10 minutes before getting up, but the assailant returned to the apartment and saw her standing up.[35] He threatened that he would really have to tie her up and she begged him not to, promising that she would lie down and not move.[36] Once the assailant left, she waited for approximately 20 minutes before she got up and found a neighbor to call 911.[37]

B. TRIAL

Kunco's trial began on July 9, 1991. The critical issue at trial was the assailant's identity. For instance, during opening arguments the Commonwealth stated:

> Ms. Seaman will tell you although she never saw the face of this individual ... she heard his voice. She heard his voice numerous times.

[28] *Id*. at 68, 77.
[29] *Id*. at 69.
[30] *Id*.
[31] *Id*.
[32] *Id*.
[33] *Id*.
[34] *Id*. at 71.
[35] *Id*.
[36] *Id*.
[37] *Id*. at 72.

> Ms. Seaman will testify here in court today that the voice she heard she recognized. And the voice she recognized was the voice of John Kunco.[38]

Defense counsel rebutted this argument and declared that Kunco was not Seaman's assailant:

> The whole focus of this trial, ladies and gentlemen, is going to be the identity of the person who did this. Because I'm going to tell you right now, Mr. Kunco maintains very strongly that it was not him.[39]

1. PROSECUTION'S CASE

The Commonwealth premised its case on two things: (1) Seaman's voice identification; and (2) bite mark identification.

a. VOICE IDENTIFICATION

Seaman admitted she had poor vision, that she was not wearing her glasses during the attack, and that she was unable to capture an adequate view of her assailant's face. She described her assailant as tall and bearded.[40] While she was unable to visually identify her assailant, she said she recognized the assailant's voice as that of the former maintenance man of her apartment building—John Kunco. She said she recognized the assailant's lisp as Kunco's lisp.

Sergeant Korman, the first responding officer, said that when he found Seaman, she immediately identified her assailant as "a John that had previously worked [in her apartment building] as a maintenance man."[41] Sgt. Korman and Detective Link's December 16, 1989 police report, however, fails to mention this extremely relevant fact.[42] At trial, Detective Link conceded that the assailant's identity is an important item of

[38] NT at 37-38.
[39] *Id*. at 44.
[40] *Id*. at 58, 79.
[41] *Id*. at 111.
[42] *Id*. at 283.

information that is normally incorporated into all police reports.[43] Detective Link offered no explanation as to why neither he nor Sgt. Korman incorporated this significant fact into their report.

Seaman's preliminary hearing testimony also casts doubt as to Sgt. Korman's claim that Seaman "immediately identified" Kunco as her assailant. At the preliminary hearing, Seaman said she initially tried to identify her assailant's voice *two days after the attack*, while she was still at Citizens General Hospital.[44] She said Detective Dlubak visited her in the hospital and tried to imitate a lisp and asked her if his imitation sounded like her assailant.[45] On a scale of 1 to 10 (1 being totally unlike her assailant's voice and 10 being very similar to her assailant's voice), she gave Detective Dlubak's imitation a 10.[46]

At trial, however, Seaman testified that she "immediately" informed detectives that she recognized the assailant's voice as Kunco's voice. On cross-examination, though, Seaman could not explain or reconcile her preliminary hearing testimony; she admitted they were entirely inconsistent with one another.[47] For these reasons, Seaman's alleged voice identification must be viewed through a very cautious lens.

Serious questions also remain regarding Detective Dlubak's voice imitation. For instance, he did not electronically record his voice imitations and he had never heard Kunco's voice before he imitated his lisp.[48] Furthermore, investigators never asked

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[43] *Id*.
[44] *Id*. at 95.
[45] *Id*.
[46] *Id* at 97. Ms. Seaman admitted that at the preliminary hearing she said she rated Detective Dlubak's imitation as an 8 and not as a 10.
[47] *Id*. at 95
[48] *Id*. at 284-85.

Seaman to listen to other suspects' voices.[49] Most significantly, investigators failed to have Seaman listen to Craig Callen's voice. Callen was the maintenance man at Seaman's apartment complex *at the time of the attack*, and he, like Kunco, spoke with a lisp. More importantly, Callen had red hair and a red beard, as opposed to Kunco who had black hear and a black beard. The color of Callen's beard is significant because investigators recovered red hairs from Seaman's bloody bed sheets; red hairs that could not be matched to Seaman or Kunco. Additionally, Callen drove a green car and a green car was seen leaving the area of Seaman's apartment building immediately after her attack. Finally, Callen's wife stated that he acted violently toward her in the days prior to Seaman's attack.

b. BITE MARK TESTIMONY

For more than five months after Seaman's attack, the Commonwealth did not have an iota of evidence linking Kunco to her attack. Notably, the Commonwealth's forensic dentists, Dr. Michael Sobel and Dr. Thomas David, could not even link the bite mark on Seaman's shoulder to Kunco because when investigators photographed the bite mark, they failed to include a reference scale. In their 1994 *Journal of Forensic Science* article, Drs. Sobel and David explained why they could not render an identification without a reference scale:

> This bite mark was photographed by law-enforcement officials. However, none of the photographs included a reference scale…. Subsequently, all evidence in the file was reviewed by the prosecutor. Dr. Sobel was then contacted and asked to examine the bite mark photograph obtained by the police. The prosecutor was informed that the photograph depicted a human bite mark, but because there was no reference scale, comparison with a potential suspect was not possible.[50]

[49] *Id*. at 98.

[50] Thomas David & Michael Sobel, *Recapturing a Five-Month-Old Bite Mark by Means of Reflective Ultraviolet Photography*, 39 J. FORENSIC SCI. 1560 (1994).

The lack of a reference scale, however, did not deter the Commonwealth. Instead, the prosecutor asked Drs. Sobel and David what could be done to properly document the bite mark. Again, Drs. Sobel and David explained the prosecutor's request and their response in their 1994 *Journal of Forensic Science* article:

> Since the other forensic evidence gathered was inconclusive, the bite mark now became crucial to the case. The prosecutor inquired as to what could be done to properly document the bite mark. The authors related that a case involving similar circumstances had been presented at a scientific meeting. Based on this information, the prosecutor authorized an examination of the victim with ultraviolet light in an attempt to "retrieve" and properly document the bite mark in question, which was already 3 to 4 months old.[51]

Thus, on May 19, 1991, *five months after* the assailant inflicted the bite mark, Drs. Sobel and David re-examined Seaman's shoulder with a UV-light source. According to their reports and *Journal of Forensic Science* article, their examination revealed "a significant injury pattern" that "depicted… a human bite mark [that] could be compared with models of [Kunco's] teeth previously obtained by Dr. Sobel."[52] After comparing Kunco's bite pattern to the bite mark, Drs. Sobel and David opined that Kunco—*and only he*—could have inflicted the bite mark.

For instance, in his July 8, 1991 report, Dr. Sobel concluded: "Within a reasonable medical certainty, the bite mark on the back shoulder area of Donna Seaman was made by the teeth of John Kunco."[53] Likewise, in his July 8, 1991 report, Dr. David concluded: "After careful consideration it is my opinion… to a reasonable degree of

[51] *Id*. at 1561.
[52] *Id*. at 1561, 1562.
[53] Ex. 3.

dental certainty that the bite mark found on the victim was produced by the teeth of John Kunco."[54]

At trial, Dr. Sobel testified that:

> I could say that within a reasonable dental certainty, that the bite on the left back shoulder area of Donna Seaman *was in fact inflicted by the teeth of John Kunco* ... I felt comfortable about this decision because there were no inconsistencies that I could come up with at all and everything fit perfectly[.][55]

Dr. Sobel added that he had "no doubt" that Kunco inflicted the bite mark and that, next to fingerprinting,[56] "[d]ental identification… is the most accurate form of identification of an individual."[57] Dr. Sobel also stated that because

> dental identification is based on class and individual characteristics of an individual's teeth… I'd say we can be very certain that if all these characteristics match, that it is uniquely related to an individual. The size relationships, the shape of the teeth… the fractured portions of a tooth, the worn areas, all of these taken together create a fingerprint picture of the individual.[58]

The following colloquy with the prosecutor ended Dr. Sobel's direct examination testimony:

> Prosecutor: Okay. And, again, your opinion is the bite mark originated where, Doctor?
>
> Sobel: The bite mark originated from the teeth of John Kunco.[59]

At trial, Dr. David testified that Kunco had "a relatively unique set of teeth,"[60] and that there was a "remarkable consistency" between Kunco's bite pattern and the bite

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[54] Ex. 4.
[55] NT at 187 (emphasis added).
[56] *Id*. at 188.
[57] *Id*.
[58] *Id*. at 188-89.
[59] *Id*. at 189.
[60] *Id*. at 245.

mark on Seaman's shoulder.[61] Dr. David also described the consistency between Kunco's bite pattern and the bite mark as "very consistent"[62] and "incredibly remarkable."[63] Dr. David offered the following opinion regarding the bite mark's origin:

> It is my opinion, to a reasonable degree of dental certainty, that the mark in question is indeed a human bite mark. It is also my opinion, to a reasonable degree of dental certainty, that the bite mark was made by the teeth of the defendant, John Kunco.[64]

2. KUNCO'S DEFENSE

Kunco proclaimed in innocence, denied assaulting Seaman, and presented an alibi defense.[65] He testified that he was at home with his common law wife, Robin Turner, and their newborn baby at the time of the attack.[66]

Turner also testified on Kunco's behalf and said she was certain that he was home at the time of the attack because they had a newborn baby who slept with them and she woke up every few hours to feed the baby.[67] She said Kunco was asleep in their bed each time she woke up to feed the baby.[68]

Trial counsel also argued that, because Turner was a rape victim herself, it was unlikely she would lie about Kunco's whereabouts to protect a rapist.[69]

3. COMMONWEALTH'S CLOSING ARGUMENTS

During closing arguments, the Commonwealth hammered home the bite mark evidence, arguing that it proved Kunco's guilt beyond a reasonable doubt:

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[61] *Id*. at 249.
[62] *Id*. at 262.
[63] *Id*. at 250.
[64] *Id*. at 265.
[65] During opening statements, trial counsel stated: "I'm going to tell you right now, Mr. Kunco maintains very strongly that it was not him, that he was home in bed with his girlfriend, Robin Turner, at the time." *Id*. at 44.
[66] *Id*.
[67] *Id*. at 401.
[68] *Id*. at 404.
[69] *Id*. at 441, 443-44.

> [T]here's no way, no way on this earth, for Mr. Kunco to explain how his tooth marks got on Donna Seaman's shoulder unless you accept the fact that he's the one who attacked and brutalized Mrs. Seaman. That's the only explanation, ladies and gentlemen. That's why the evidence is better than fingerprints or hair samples ... [T]he bite mark on Danna Seaman's shoulder was as good as a fingerprint. And I submit to you it was that, ladies and gentlemen, for all intents and purposes. Ladies and gentlemen, I'd submit to you that John Kunco should have just signed his name on Donna Seaman's back, because the bite mark on Donna Seaman's shoulder belongs to John Kunco.[70]

4. VERDICT AND SENTENCING

The jury convicted Kunco on all ten charges, including involuntary deviate sexual intercourse by threat of forcible compulsion, rape by forcible compulsion, and aggravated assault causing bodily injury.[71] The trial judge sentenced Kunco to 45-90 years in prison.

C. POST-CONVICTION LITIGATION

1. STATE POST-CONVICTION (PCRA) PROCEEDINGS

During his initial PCRA proceedings, Kunco challenged the bite mark evidence. In his appeal to the Superior Court, Kunco argued that "the ADA [American Dentistry Association] does not recognize forensic odontology as a specialty nor does there exist board certification in that field." The PCRA court not only found this claim meritless, it stated that: "There were never any other suspects in this case. John Kunco was the only suspect and the Commonwealth proved beyond a reasonable doubt that John Kunco's bite marks were imbedded in the shoulder of the victim in the early morning hours of December 16, 1990."[72] In affirming the PCRA court's dismissal, the Superior court not only found Kunco's claim meritless, it (unreasonably) suggested that the bite mark

[70] *Id*. at 453, 456.
[71] *Id*. at 504
[72] PCRA Court's 3/19/1992 Opinion, at 10.

evidence may not have been critical to the Commonwealth's case. The Superior Court stated:

> In addition, the jury had other evidence upon which to rely, including the victim's voice identification of the appellant and, perhaps most important, the presentation and demeanor of the appellant when he took the stand in his own defense.

Kunco filed a second PCRA petition and, once again, challenged the bite mark evidence. Kunco argued that the trial court erred by not holding a *Frye* hearing to determine whether the UV-lighting technique, used by Drs. Sobel and David, was generally accepted by the relevant scientific community. Kunco also argued that "after-discovered" evidence regarding Dr. Michael West established that the UV-lighting technique was in fact unreliable and not generally accepted.

The PCRA court, once again, rejected Kunco's bite mark claims. The court stated:

> [T]he methods used for comparison were of the type that were approved, established, scientific techniques, although including the novel use of ultraviolet photographs. The take of dental impressions and the use of one-to-one photographs of the bite mark used in this are scientifically accepted procedures used in bite mark comparisons. The Pennsylvania Superior Court has determined that the area of wound mark comparison is scientifically recognized. Commonwealth v. Graves, 456 A.2d at 567… *Given the fact… that the Commonwealth's expert witness relied upon scientifically accepted methods of bite mark comparison; this contention also will fail.*[73]

The Superior Court affirmed the PCRA court's dismissal, holding that "[t]his Court has already held that *the technique used by the Commonwealth experts is scientifically recognized*."[74]

2. FEDERAL HABEAS PROCEEDING

[73] PCRA Court's 5/26/1998 Opinion, at 14 (emphasis added).
[74] Superior Court's 5/24/1999 Opinion, at 7 (emphasis added).

Kunco filed a federal habeas petition alleging, *inter alia*, that the bite mark evidence was so unreliable that it violated his federal due process rights by denying him a fundamentally fair trial. The magistrate judge recommended that Kunco's petition be denied, which the District Court ultimately did on January 3, 2002.

The U.S. Court of Appeals for the Third Circuit granted a certificate of appealability, " ... limited to the issue of whether after-discovered evidence regarding the reliability of the scientific method employed to recapture and present bite mark evidence to the jury demonstrates that the admission of expert testimony in this case violated appellant's due process right by denying him a fundamentally fair trial." The Third Circuit affirmed the District Court's dismissal, holding that the bite mark evidence was not "so unreliable that he was deprived of his right to a fundamentally fair trial." *Kunco v. Attorney General of Commonwealth of Pennsylvania*, 85 Fed. Appx. 819, 820 (3rd Cir. 2003).

III. THE MEANING OF THE STATE AND FEDERAL COURT'S DECISIONS

At trial, the Commonwealth presented Drs. Sobel and David as bite mark experts. Pursuant to *Commonwealth v. Topa*, 369 A.2d 1277 (Pa.1977), if a party introduces "novel scientific evidence," the trial judge has a duty to hold a hearing to determine whether the relevant scientific community has generally accepted the novel evidence or technique as valid and reliable. *Id.* at 1281 (*Frye* applies only to "novel scientific evidence"); *accord Commonwealth v. Puksar*, 951 A.2d 267, 275 (Pa. 2008); *Commonwealth v. Delbridge*, 859 A.2d 1254, 1260 (Pa. 2004) (plurality opinion) ("*Frye* only applies to novel scientific evidence"). As the Pennsylvania Supreme Court explained in *Topa*, the "requirement of general acceptance in the scientific community

assures that *those most qualified to assess the general validity of a scientific method will have the determinative voice*." *Commonwealth v. Topa*, 369 A.2d at 1281 (emphasis added). The court reinforced this point in *Grady v. Frito-Lay, Inc.*, 839 A.2d 1038 (Pa. 2003), when it stated: "One of the primary reasons we embraced the *Frye* test in *Topa* was its assurance that judges would be guided by *scientists* when assessing the reliability of a scientific method." *Id*. at 1044-45 (emphasis added). The *Grady* court also added:

> We believe now, as we did then, that requiring judges to pay deference to the conclusions of those who are in the *best position to evaluate the merits of scientific theory and technique when ruling on the admissibility of scientific proof*, as the *Frye* rule requires, is the better way of insuring that only reliable expert scientific evidence is admitted at trial.

Id. at 1045 (emphasis added). In short, "*Frye* requires the scientific community to reach some consensus as to reliability then relies on such consensus to determine the admissibility of the challenged scientific evidence." *Blum v. Merrell Dow Pharms*., 764 A.2d 1, 3 (Pa. 2000).

As these comments make clear, *Frye's* general acceptance test is premised on three assumptions. First, it assumes that a particular scientific community has the resources and facilities to rigorously and soundly assess the reliability and validity of the proffered scientific technique or evidence. Second, it assumes that this scientific community is comprised of scientists who have the requisite training and education in science to develop and conduct comprehensive and sound experiments to assess the reliability and validity of the proffered scientific technique or evidence. And third, it assumes that these experts are *actually assessing* the reliability and validity of the proffered scientific technique or evidence by engaging in rigorous and sound scientific research and experimentation.

The trial judge, as mentioned, is only required to hold a *Frye* hearing if the scientific evidence is "novel." Scientific evidence is not "novel" if it has been previously admitted and determined to be generally accepted by the relevant scientific community. *See Grady v. Frito Lay*, 839 A.2d 1038 (Pa. 2003); *Blum v. Merrell Dow Pharms*., 764 A.2d 1 (Pa. 2000). Accordingly, if a Pennsylvania court has previously determined that a particular type of scientific evidence or technique is generally accepted, then the evidence or technique is no longer "novel" and the trial judge is not required to hold a *Frye* hearing. Instead, the trial judge can simply take judicial notice of the evidence's or technique's general acceptance–i.e., its reliability and validity.[75] Importantly, by taking judicial notice of a particular form of scientific evidence or technique, the trial judge must still make the same assumptions that buttress *Frye's* general acceptance test.[76]

Bite mark identification was not "novel" in 1991; it had been generally accepted in several Pennsylvania cases and other cases around the country. *See, e.g.*, *Commonwealth v. Henry*, 569 A.2d 929 (Pa. Super. 1990); *Commonwealth v. Thomas*, 561 A.2d 699 (Pa. 1989); *see also DuBoise v. State*, 520 So.2d 260, 261 (Fla. 1988) (Expert "testified at trial that within reasonable degree of dental certainty DuBoise had bitten the victim"); *People v. Milone* 356 N.E.2d 1350, 1355-56 (Ill. App. 1976);

[75] *See* Pa.R.Evid. 201(b); 1 SCIENTIFIC EVIDENCE (Giannelli & Imwinkelried eds. 3d ed. 1999) § 1-2, at 3 ("Once a scientific prinicple is sufficiently established, a court may take judicial notice of the validity of that principle."); *Daubert v. Merrell Dow Pharmaceuticals, Inc*., 509 U.S. 579, 592 n.11 (1993) ("[T]heories that are so firmly established as to have attained the status of scientific law... properly as subject to judicial notice under Fed. Rule Evid. 201.").

[76] First, the trial judge must assume that the particular scientific community has the resources and facilities to rigorously and soundly assess the reliability and validity of the proffered scientific technique or evidence. Second, the trial judge must assume that this scientific community is comprised of scientists who have the requisite training and education in science to develop and conduct comprehensive and sound experiments to assess the reliability and validity of the proffered scientific technique or evidence. Third, an perhaps most importantly, the trial judge must assume that these scientists *actually conducted* rigorous and verifiable empirical research that established–at some point–the reliability and validity of the proffered scientific technique or evidence.

Commonwealth v. Cifizzari, 492 N.E.2d 357, 360 (Mass. 1986); *State v. Sager*, 600 S.W.2d 541, 564, 569 (Mo. App. 1980) (describing bite mark identification as an "exact science'); *People v. Marsh*, 441 N.W.2d 33, 35 (Mich. App. 1989) ("[T]he science of bite mark analysis has been extensively reviewed in other jurisdiction"); *State v. Armstrong*, 369 S.E.2d 870, 877 (W. Va. 1988) (judicially noticing the reliability of bite mark evidence); *State v. Richards*, 804 P.2d 109, 112 (Ariz. App. 1990) ("[B]itemark evidence is admissible without a preliminary determination of reliability"); *State v. Temple*, 273 S.E.2d 273, 279 (N.C. 1981). As a result, the trial judge was not required to hold a *Frye* hearing and could take judicial notice of bite mark identification's general acceptance—i.e., its reliability and validity.

While the trial judge did not state on the record that he was taking judicial notice of Drs. Sobel's and David's bite mark testimony, in substance, this is what happened. Indeed, after the Commonwealth laid the foundation for Drs. Sobel's and David's testimony, by referencing their training and education in dentistry and bite mark identification, the trial judge qualified each of them as bite mark experts.[77] Once qualified, the trial admitted their bite mark identification testimony without holding a *Frye* hearing. In essences, then, the trial judge used his "broad discretion" and judicially noticed (implicitly) the general acceptance of bite mark identification. *See Commonwealth v. Rodgers*, 605 A.2d 1228, 1234 (Pa. Super. 1992) ("Our law is well established that the trial court enjoys *broad discretion* in admitting or excluding evidence.") (emphasis added).

By judicially noticing the general acceptance of bite mark identification, the trial judge had to make several assumptions pertaining to the forensic science and bite mark

[77] NT at 151, 221.

communities. First, the trial judge had to assume that the forensic science and bite mark communities had the requisite resources and facilities to rigorously and soundly assess the reliability and validity of the techniques used to identify marks as human bite marks and to individualize human bite marks to the one person who could have left the bite mark to the exclusion of all others. Second, the trial judge had to assume that the forensic science and bite mark communities were comprised of scientists who had the requisite scientific training and education to develop and conduct comprehensive and sound experiments to assess the reliability and validity of the techniques used to identify and individualize human bite marks. Third, and most significantly, the trial judge had to assume that forensic scientists and odontologists *actually conducted* rigorous and *verifiable* empirical research that established–at some point–the reliability and validity of the techniques used to identify human bite marks and to individualize them to the one and only person who could have left the bite mark to the exclusion of all others.

With respect to the third assumption, the trial also had to assume that the forensic science and bite mark communities had–at some point–(1) developed empirically sound standards for examining, identifying, and individualizing human bite marks that were capable of producing consistently accurate results; (2) developed adequate procedures for these techniques that minimize the sources of unconscious contextual biases; (3) developed precise and clearly defined terminology for these techniques that could not be misunderstood by the fact finder; (4) developed adequate reporting standards that would enable another forensic dentist to reproduce the initial forensic dentist's methodologies and to verify his or her initial conclusions; and (5) conducted adequate empirical research establishing that: (a) the dental features of the biting teeth (six upper and six lower teeth)

are unique; (b) this uniqueness remains constant through out a person's lifetime; (c) these unique dental features can and are transferred and recorded every time the person bites into an impressionable object, such as human skin; and (d) trained forensic dentists can accurately determine whether a mark or wound on a person's body is a human bite mark and link the bite mark to the one and only person who could have created the bite mark. *See* C. Michael Bowers, *The Scientific Status of Bitemark Comparisons*, in DAVID L. FAIGMAN, ET AL., MODERN SCIENTIFIC EVIDENCE: FORENSIC 483 (2008)

As explained *infra*, the NAS Report proves that each of these assumptions were (and still are) incorrect.

IV. THE NAS REPORT

Recognizing the "rising nationwide criticism of forensic evidence," *Ramirez v. State*, 810 So.2d 836, 853 (Fla. 2001),[78] and "that significant improvements are needed in

[78] Indeed, several courts had questioned forensic science's proclaimed accuracy and reliability prior to Congress's directive to the NAS to study the forensic science system. For instance, Sixth Circuit Court of Appeals Judge Boyce Martin called crime labs "unreliable." *Moore v. Parker*, 425 F.3d 250, 269 (6th Cir. 2005) (Boyce, J., dissenting). Elsewhere, Federal District Court Judge Jed Rakoff wrote: "False positives–that is, inaccurate incriminating test results–are endemic to much of what passes for 'forensic science.'" *United States v. Bentham*, 414 F. Supp. 2d. 472, 473 (S.D.N.Y. 2006). And Federal District Court Judge Nancy Gertner commented on the noticeable correlation between wrongful convictions and unreliable or invalid forensic science, noting that "recent reexaminations of relatively established forensic testimony have produced striking results." *United States v. Green*, 405 F. Supp. 2d 104, 109 n.6 (D. Mass. 2005). Other courts and judges have made similar observations. *See, e.g., United States v. Crisp*, 324 F.3d 261, 273 (4th Cir. 2003) (Michaels, J., dissenting); *United States v. Glynn*, 578 F.Supp.2d 567, 570 (S. D. N. Y. 2008) ("Based on the *Daubert* hearings this Court conducted... the Court very quickly concluded that whatever else ballistics identification analysis could be called, it could not fairly be called 'science.'"); *United States v. Diaz*, 2007 U.S. Dist. LEXIS 13152, at *35-36 (N. D. Cal. Feb. 12, 2007) (citing *Monteiro's*, see *infra*, conclusion that no scientific methodology exists to support a finding of a match to an absolute certainty, but permitting testimony "to a reasonable degree of ballistic certainty"); *United States v. Monteiro*, 407 F.Supp.2d 351, 355 (D. Mass. 2006) (finding that while the underlying principles behind firearm identification may be scientifically valid, "there is no reliable ... scientific methodology which will currently permit the expert to testify that [a casing and a particular firearm are] a 'match' to an absolute certainty, or to an arbitrary degree of statistical certainty."); *Ramirez v. State*, 810 So. 2d 836, 853 (Fla. 2001) ("In order to preserve the integrity of the criminal justice system... particularly in the face of rising nationwide criticism of forensic evidence in general... state courts... must... cull scientific fiction and junk science from

forensic science," NAS Report, at P-1, Congress directed the NAS "to conduct a study on forensic science." *Id*. at S-1; P.L. No. 109-108, 119 Stat. 2290 (2005); H.R. Rep. No. 109-272, at 121 (2005). In the fall of 2006, the NAS established a committee to implement Congress's charge. The committee included members of the forensic science community, legal, and science communities. The committee met on eight occasions between January 2007 and November 2008. During these meetings, the "committee heard expert testimony" on several issues relating to the forensic science community. Between meetings, committee members reviewed "numerous published materials, studies, and reports related to the forensic science disciplines, engaged in independent research on the subject, and worked on drafts of the final report." *Id*. at S-2. The committee, as mentioned, issued its final report on February 17, 2009.

A. FINDINGS REGARDING FORENSIC SCIENCE

At the outset, the NAS Report acknowledged what had become painfully obvious in the years preceding the report: invalid forensic evidence and exaggerated forensic testimony easily mislead fact finders and had contributed to an alarming number of wrongful convictions. The NAS Report stated:

> [Advances in DNA testing] revealed that, in some cases, substantive information and testimony based on faulty forensic science analyses may

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fact."); *People v. Saxon*, 871 N.E.2d 244, 256 (Ill. App. 2007) (McDade, J., dissenting) (noting that "1/3 of the wrongful convictions" have been "linked to the misapplication of forensic disciplines" which is defined as where "forensic scientists and prosecutors presented fraudulent, exaggerated, or otherwise tainted evidence to the judge or jury which led to the wrongful conviction") (citing www.innocenceproject.org); *State v. Clifford*, 121 P.3d 489, 503 (Mont. 2005) (Nelson, J., concurring) (noting how "long-accepted forensic science evidence has recently received greater public scrutiny not only because the 'experts' proffering the evidence were either astonishingly inept or downright corrupt, but also because of recent scientific developments such as DNA tests which have revealed the limitations of forensic techniques such as hair identification analysis") (citation omitted); *State v. Quintana*, 103 P.3d 168, 170 (Utah App. 2004) (Thorne, J., concurring) ("[M]ost evidence points to a lack of consistent training of [fingerprint] examiners and an absence of any nationally recognized standard to ensure that examiners are equipped to perform the tasks expected of them.").

> have contributed to wrongful convictions of innocent people. This fact has demonstrated the potential danger of giving undue weight to evidence and testimony derived from imperfect testing and analysis. Moreover, imprecise or exaggerated expert testimony has sometimes contributed to the admission of erroneous or misleading evidence.

NAS Report, at S-3.[79] The NAS Report also commented:

> The number of exonerations resulting from the analysis of DNA has grown across the country in recent years, uncovering a disturbing number of wrongful convictions—some for capital crimes—and exposing serious limitations in some of the forensic science approaches commonly used in the United States.

Id. at 1-6.

The NAS Report then identified and discussed several issues in forensic science that call into question–if not entirely undermine–the proclaimed reliability (and infallibility) of several non-DNA forensic identification techniques—particularly bite mark identification. The issues pertained to: (1) inadequate or no research regarding base rates, examiner error rates, measurement error rates, and minimizing the risk of contextual biases; (2) inadequate or no standards regarding forensic terminology, report writing, forensic science education, and for determining a match; (3) the lack of mandatory certification for forensic examiners—including forensic dentists; and (4) inadequate funding. The following passage captures the essence of the NAS Report's overall findings:

> Too often [forensic science facilities] have inadequate educational programs, and they typically lack mandatory and enforceable standards, founded on rigorous research and testing, certification requirements, and accreditation programs. Additionally, forensic science and forensic

[79] For a more in-depth discussion of forensic science and wrongful convictions, see Brandon L. Garrett & Peter J. Neufeld, *Invalid Forensic Science Testimony and Wrongful Convictions*, 95 VA. L. REV. 1 (2009) and Craig M. Cooley & Gabriel S. Oberfield, *Increasing Forensic Evidence's Reliability and Minimizing Wrongful Convictions: Applying Daubert Isn't the Only Problem*, 43 TULSA L. REV. 285 (2007).

> pathology research, education, and training lack strong ties to our research universities and national science assets.

NAS Report, at S-10.

In the end, the NAS Report stressed that "*substantial improvement* is necessary in the forensic science disciplines to enhance law enforcement's ability to identify those who have or have not committed a crime and to prevent the criminal justice system from erroneously convicting or exonerating the persons who come before it." *Id*. at 1-2 (emphasis added).

1. NO RESEARCH

The NAS Report repeatedly mentioned that there is no research regarding: (1) base rates for certain evidentiary characteristics and features (e.g., teeth and bite pattern characteristics); (2) error rates for forensic examiners (i.e., proficiency testing); (3) errors rates for different forensic technologies (i.e., measurement error); and (4) ways in which conscious or unconscious contextual biases can be minimized. The NAS Report stated:

> The fact is that many forensic tests—such as those used to infer the source of toolmarks and *bite marks*—never been exposed to stringent scientific scrutiny. Most of these techniques were developed in crime laboratories to aid in the investigation of evidence from a particular crime scene, and researching their limitations and foundations was never a top priority.

NAS Report, at 1-6 (emphasis added). The NAS Report added:

> [S]ome forensic science disciplines are supported by little rigorous systematic research to validate the discipline's basic premises and techniques. There is no evident reason why such research cannot be conducted.

Id. at S-16, 6-4 ("the forensic science disciplines suffer from an inadequate research base"). The NAS Report also stated:

> The simple reality is that the interpretation of forensic evidence is not always based on scientific studies to determine its validity. *This is a serious problem*. Although research has been done in some disciplines, there is a notable dearth of peer-reviewed, published studies establishing the scientific bases and validity of many forensic methods.

Id. at S-5 and S-6 (emphasis added). The NAS Report also stated:

> Much forensic evidence—including, *for example*, *bite marks*… is introduced in criminal trials without any meaningful scientific validation, determination of error rates, or reliability testing to explain the limits of the discipline.

Id. at 3-18 (emphasis added). The lack of research dates back to the late 1980s:

> Before the first offering of the use of DNA in forensic science in 1986, no concerted effort had been made to determine the reliability of these tests, and some in the forensic science and law enforcement communities believed that scientists' ability to withstand cross-examination in court when giving testimony related to these tests was sufficient to demonstrate the tests' reliability. However, although the precise error rates of these forensic tests are still unknown, comparison of their results with DNA testing in the same cases has revealed that some of these analyses, as currently performed, produce erroneous results.

Id. at 1-6.

The lack of research raises significant concerns because "[m]any of the processes used in... forensic science... are largely empirical applications of science—that is, they are not based on a body of knowledge that recognizes the underlying limitations of the scientific principles and methodologies used for problem solving and discovery." *Id*. at 1-3. The NAS Report reinforced this point by noting that "many [forensic identification] techniques have been developed heuristically. That is, they are based on observation, experience, and reasoning without an underlying scientific theory, experiments designed to test the uncertainties and reliability of the method, or sufficient data that are collected and analyzed scientifically." *Id*. at 5-1.

a. NO BASE RATE DATA

Forensic science is concerned with individuality, but true individuality is not a legitimate scientific expectation, even for DNA testing.[80] At best, then, all forensic examiners can present to the fact finder is the likelihood of a coincidental match–i.e., what is the conditional probability that a randomly-selected individual or object shares the same characteristic(s) as the crime scene print or mark. Determining the likelihood of a coincidental match, however, requires *base rate* data regarding the characteristic(s) or feature(s) under investigation–e.g., teeth and bite mark characteristic.[81] As the NAS Report repeatedly noted, however, base rate data is non-existent for many of the forensic sciences, including bite mark identification:

> With the exception of nuclear DNA analysis, however, no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source. In terms of scientific basis, the analytically based disciplines generally hold a notable edge over disciplines based on expert interpretation.

Id. at S-5. As mentioned *infra*, the NAS Report concluded that there is no base rate data regarding teeth and bite pattern characteristics.

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[80] *See Commonwealth v. Crews*, 640 A.2d 395, 401 (Pa. 1994) ("For proving identity... as opposed to disproving identity, DNA can never provide absolute, conclusive proof, even thought extremely low probabilities of a coincidental match provide a basis for very strong inferences of identity."); JOHN M. BUTLER, FORENSIC DNA TYPING: BIOLOGY, TECHNOLOGY, AND GENETICS OF STR MARKERS 27 (2d 2005) (noting that "absolute certainty in DNA identification is not possible in practice" and explaining that "the next best thing is to claim virtual certainty due to the extreme small probabilities of a coincidental (random) match.").

[81] The "social science literature defines a base rate as a proportion - the relative frequency with which an event occurs or an attribute is present in some reference population." Jonathan J. Koehler, *When do Courts Think Base Rate Statistics are Relevant?*, 42 JURIMETRICS J. 373, 374 (2002). For a straightforward conversation of base rates in the polygraph context, see *State v. Porter*, 698 A.2d 739, 767 n.53 (Conn. 1997). For example, base rate data may provide data regarding how many Californians are over sixty-five or how many National Football League players were arrested in a given year. In the forensic science context, base rate data can provide information on how often a particular friction ridge fingerprint pattern appears in the human population. Likewise, it can provide data as to how often a hair characteristic or a combination of different hair characteristics appears in the Caucasian race, the African-American race, or the Latino race.

With no base rate, many forensic examiners and dentists–like Drs. Sobel and David—routinely make (unjustifiable) probabilistic claims based on their experience. The NAS Report criticized such testimony and urged the forensic science community to undertake base rate research:

> In most forensic science disciplines, no studies have been conducted of large populations to establish the uniqueness of marks or features. Yet, despite the lack of a statistical foundation, examiners make probabilistic claims based on their experience. A statistical framework that allows quantification of these claims is greatly needed.

Id. at 6-5. The NAS criticized such testimony due to the inherent limitations of human intuition:

> [H]uman intuition is not a good substitute for careful reasoning when probabilities are concerned. As an example, consider a problem commonly posed in beginning statistics classes: How many people must be in a room before there is a 50 percent probability that at least two will share a common birthday? Intuition might suggest a large number, perhaps over 100, but the actual answer is 23. This is not difficult to prove through careful logic, but intuition is likely to be misleading.

Id. at 4-10. The NAS Report also commented on the correlation between experienced-based bite mark testimony and wrongful convictions:

> Testimony of experts generally is based on their experience and their particular method of analysis of the bite mark. Some convictions based mainly on testimony by experts indicating the identification of an individual based on a bite mark have been overturned as a result of the provision of compelling evidence to the contrary (usually DNA evidence).

Id. at 5-36.

An off-shoot of the base rate research is research focused on intraindividual variability and interindividual variability. This type of research is also non-existent in forensic science:

> For the identification sciences (e.g., friction ridge analysis, toolmark analysis, handwriting analysis), such studies would accumulate data about

> the intraindividual variability (e.g., how much one finger's impressions vary from impression to impression, or how much one toolmark or signature varies from instance to instance) and the interindividual variability (e.g., how much the impressions of many fingerprints vary across a population and in what ways). With that information, one could begin to attach confidence limits to individualization determinations and also begin to develop an understanding of how much similarity is needed in order to attain a given level of confidence that a match exists.

Id. at 6-1 and 6-2.

b. NO RESEARCH AIMED AT MINIMIZING CONTEXTUAL BIASES

According to the NAS Report, "scientific investigations... must be as free from bias as possible" and "practices [must be] put in place to detect biases (such as those from measurements, human interpretation) and to minimize their effects on conclusions." NAS Report, at 4-2. Consequently, a "body of research is required to establish the limits and measures of performance and to address the impact of sources of variability and *potential bias*." *Id*. at 4-9 (emphasis added). This research is especially critical for subjective forensic assessments such as bite mark identification because the likelihood of failing prey to unconscious contextual biases increases when (1) examiners confront an ambiguous stimulus capable of producing varying interpretations and (2) the examiner is affiliated with a law enforcement or prosecutorial agency.[82]

The NAS Report acknowledged that bite mark identification is very subjective: "In numerous instances, experts diverge widely in their evaluations of the same bite mark evidence, which has led to questioning of the value and scientific objectivity of such

[82] The context bias (or observer effect) phenomenon is governed by the basic tenet of cognitive psychology, which states that an individual's desires and expectations influence how they perceive an object or situation. *See* ULRIC NEISSER, COGNITION AND REALITY: PRINCIPLES AND IMPLICATIONS OF COGNITIVE PSYCHOLOGY 43-45 (1976). To fall prey to such effects, examiners must 1) confront an ambiguous stimulus capable of producing varying interpretations, and 2) be made aware, directly or indirectly, of an expected or desired outcome. *Id*.

evidence." NAS Report, at 5-37. More importantly, forensic examiners and dentists encounter many situations where they are exposed to information that can easily cultivate conscious or unconscious expectations, with the most common expectation being that the suspect or defendant is guilty. It is unsurprising that this expectation is planted into a forensic examiner's conscience because all publicly-funded crime labs are annexed to the very law enforcement or prosecutorial agencies to which they provide assistance to, and the primary objective of these agencies is to identify, prosecute, and convict the guilty. Thus, working in an environment where guilt is more often than not assumed, it is easy to see how and why forensic examiners can subconsciously develop pre-examination expectations that can influence their results. *See* NAS Report, at 6-2 ("Forensic scientists who sit administratively in law enforcement agencies or prosecutors' offices, or who are hired by those units, are subject to a general risk of bias.").

Unfortunately, while "[s]uch research is sorely needed... it [is] lacking in most of the forensic disciplines that rely on subjective assessments of matching characteristics." *Id.* at S-6. This is so because "forensic science disciplines are just beginning to become aware of contextual bias and the dangers it poses." *Id.* at 6-2. As the NAS Report stressed, the "traps created by such biases can be very subtle, typically one is not aware that his or her judgment is being affected." *Id.* Consequently, the NAS Report urged the forensic science community to conduct research aimed at identifying and minimizing contextual biases:

> [Subjective forensic] disciplines need to develop rigorous protocols to guide these subjective interpretations and pursue equally rigorous research and evaluation programs. The development of such research programs can benefit significantly from other areas, notably from the large body of research on the evaluation of observer performance in diagnostic medicine and from the findings of cognitive psychology on the potential for bias and error in human observers.

Id. at S-6.

As noted *infra*, bite mark identification "suffers from the potential for large bias[.]" *Id*. at 5-36.

c. NO ERROR RATE RESEARCH

Forensic examiners and dentists are bound to make errors. *See* NAS Report, at 4-5 ("Scientific data and processes are subject to a variety of sources of error. For example, laboratory results and data from questionnaires are subject to measurement error, and interpretations of evidence by human observers are subject to potential biases."). Consequently, a "key task for the scientific investigator designing and conducting a scientific study, as well as for the analyst applying a scientific method to conduct a particular analysis, is to identify as many sources of error as possible, to control or to eliminate as many as possible, and to estimate the magnitude of remaining errors so that the conclusions drawn from the study are valid." *Id*. at 4-5.[83] The NAS Report also stated:

> The existence of several types of potential error rates makes it absolutely critical for all involved in the analysis to be explicit and precise in the particular rate or rates referenced in a specific setting. The estimation of such error rates requires rigorously developed and conducted scientific studies. Additional factors may play a role in analyses involving human interpretation, such as the experience, training, and inherent ability of the interpreter, the protocol for conducting the interpretation, and biases from a variety of sources, as discussed in the next section. The assessment of

[83] "'Error rates' are defined as proportions of cases in which the analysis led to a false conclusion." NAS Report, at 4-7 and 4-8.

> the accuracy of the conclusions from forensic analyses and the estimation of relevant error rates are key components of the mission of forensic science.

Id. at 4-9.

In the courtroom setting, the need for error rate data is critical because, without such data, the fact finder cannot accurately identify the evidence's reliability and thus its probative value. As the NAS Report noted: "[T]he accuracy of forensic methods resulting in classification or individualization conclusions needs to be evaluated in well-designed and rigorously conducted studies. The level of accuracy of an analysis is likely to be a key determinant of its *ultimate probative value*." *Id*. at 6-2 (emphasis added).

For instance, forensic scientists and dentists are fully capable of conducting proficiency tests in order to accurately identify how often their associative conclusions (or identifications) are correct (i.e., examiner error). Such data would be extremely relevant and probative to the fact finder. For instance, had Drs. Sobel and David testified that they misidentified bite marks in 3 out of every 10 cases (a 30% error rate), the jury could have used his information to determine how much weight and credibility it should give their testimony.[84]

Similarly, forensic scientists and dentist are fully capable of identifying the error rates associated with particular techniques (i.e., method error). *See id.* at 4-5 ("As with all other scientific investigations, laboratory analyses conducted by forensic scientists are subject to measurement error."). For instance, had Drs. Sobel and David informed the

[84] According to the NAS Report: "Proficiency testing is an integral part of an effective quality assurance program. It is one of many measures used by laboratories to monitor performance and to identify areas where improvement may be needed. A proficiency testing program is a reliable method of verifying that the laboratory's technical procedures are valid and that the quality of work is being maintained." NAS Report, at 7-11 (citation omitted).

jury that the measurement technique they used to individualize the bite mark to Kunco's bite pattern had an error rate of 45%, the jury could have used his information to once again determine how much weight and credibility it should give their testimony.

Despite the importance of error rate data, "in most areas of forensic science, there is no well-defined system exists for determining error rates, and proficiency testing shows that some examiners perform poorly." *Id.* at 6-5, 6-1 ("Few forensic science methods have developed adequate measures of the accuracy of inferences made by forensic scientists."). Moreover, when proficiency tests have been conducted, they have not been "sufficiently rigorous" and, thus, offer no real value to the critical question of whether forensic examiners and the techniques they rely on are accurate. *Id.* at 7-11 ("Although many forensic science disciplines have engaged in proficiency testing for the past several decades, several courts have noted that proficiency testing in some disciplines is not sufficiently rigorous.").[85]

As noted *infra*, the NAS Report concluded that the limited proficiency tests for forensic dentists have revealed "substantial rates of erroneous results[.]" *Id.* at 1-10.

2. NO STANDARDS

[85] For example, a federal district judge noted that "the FBI [fingerprint] examiners got very high proficiency grades, but the tests they took did not ... [O]n the present record I conclude that the proficiency tests are less demanding than they should be." *United States v. Llera Plaza*, 188 F. Supp. 2d 549, 565 (E.D. PA. 2002). Similarly, another federal district judge said this about a document examiner's remarkable ability to score perfectly on all is proficiency tests: "There were aspects of Mr. Cawley's testimony that undermined his credibility. Mr. Cawley testified that he achieved a 100% passage rate on the proficiency tests that he took and that all of his peers always passed their proficiency tests. Mr. Cawley said that his peers always agreed with each others' results and always got it right. Peer review in such a 'Lake Woebegone' environment is not meaningful." *United States v. Lewis*, 220 F. Supp. 2d 548, 554 (S.D. W. Va. 2002). *See also United States v. Crisp*, 324 F.3d 261, 274 (4th Cir. 2003) (Michael, J., dissenting) ("Proficiency testing is typically based on a study of prints that are far superior to those usually retrieved from a crime scene.").

Developing and enforcing standards is critical in science because science is premised on replication. Standards "provide the foundation against which performance, reliability, and validity can be assessed." NAS Report, at 6-4. Adherence to standards also "reduces bias, improves consistency, and enhances the validity and reliability of results." *Id*. Furthermore, standards "reduce variability resulting from the idiosyncratic tendencies of the individual examiner—for example, setting conditions under which one can declare a 'match' in forensic identifications." *Id*. Simply put, standards "make it possible to replicate and empirically test procedures and help disentangle method errors from practitioner errors." *Id*.

Despite the importance of standards, the forensic science and bite mark communities have yet to develop adequate and rigorous standards for determining a "match" and writing a report. Likewise, both communities have failed to develop a precise vocabulary to ensure that the fact finder is not mislead to believe that an item of evidence has been individualized and that it could only have come from the defendant or an instrument in the defendant's possession. Finally, the forensic science community has failed to develop adequate education, certification, and accreditation standards. As the NAS Report noted:

> Although there have been notable efforts to achieve standardization and develop best practices in some forensic science disciplines and the medical examiner system, most disciplines still lack best practices or any coherent structure for the enforcement of operating standards, certification, and accreditation. Standards and codes of ethics exist in some fields, and there are some functioning certification and accreditation programs, but none are mandatory. In short, oversight and enforcement of operating standards, certification, accreditation, and ethics are lacking in most local and state jurisdictions.

Id. at S-17.

a. NO STANDARDS FOR DETERMINING A MATCH

The forensic science community has yet to develop empirically sound and "rigorous protocols for performing subjective interpretations" such as bite mark identification. *Id*. at 6-4. As noted *infra*, there are no standards that "indicate the criteria necessary for… determining whether the bite mark can be related to a person's dentitions and with what degree of probability." *Id*. at 5-35.

b. NO STANDARDIZED TERMINOLOGY AND REPORT WRITING REQUIREMENTS

Science, as mentioned, is premised on replication. Replication leads to increased confidence regarding the validity of a particular technique, test, or instrument. *See* NAS Report, at 4-3 ("The validation of results over time increases confidence."). Replication, however, can only occur if scientists precisely define terms, processes, context, results, and limitations of the results and their experiment. *Id*. at 4-2 (noting that the "key elements of good scientific practice" include "precision when defining terms, processes, context, results, and limitations"). Consequently, "laboratory reports generated as the result of a scientific analysis should be complete and thorough. They should contain, at minimum, 'methods and materials,' 'procedures,' 'results,' 'conclusions,' and, as appropriate, sources and magnitudes of uncertainty in the procedures and conclusions (e.g., levels of confidence)." *Id*. at S-15.[86]

Despite the critical importance of precisely defining terms, processes, procedures, context, and limitations, the NAS Report noted that while "[s]ome forensic laboratory

[86] *See also id*. at 6-1 ("All results for every forensic science method should indicate the uncertainty in the measurements that are made, and studies must be conducted that enable the estimation of those values."); *id.* at 6-3 ("Forensic science reports, and any courtroom testimony stemming from them, must include clear characterizations of the limitations of the analyses, including associated probabilities where possible.").

reports meet this standard of reporting... *most do not*." *Id*. at 6-3 (emphasis added). The NAS Report added:

> [R]eports contain only identifying and agency information, a brief description of the evidence being submitted, a brief description of the types of analysis requested, and a short statement of the results (e.g., "The green, brown plant material in item #1 was identified as marijuana"). The norm is to have no description of the methods or procedures used, and most reports do not discuss measurement uncertainties or confidence limits.

Id. As a result, the NAS Report concluded that "[t]here is a critical need in most fields of forensic science to raise the standards for reporting and testifying about the results of investigations." *Id*. at 6-3. Indeed, injustices have occurred and death sentences vacated because forensic examiners failed to adequately and objectively define and describe terms, processes, procedures, context, and the limitations of their results and techniques.[87]

[87] The Ninth Circuit Court of Appeals commented that the California Department of Justice serologist, who provided critical testimony at Herman Atkins' rape trial, disclosed a lab report that "lacked specificity and was arguably misleading," and that he "was not as forthcoming in explaining information as he should have been." *Atkins v. County of Riverside*, 151 Fed. Appx. 501, 506 (9th Cir. 2005). The serologist's testimony and "misleading" lab report played a role in Atkins' wrongful rape conviction. *See* Fred Dickey, *Worst-Case Scenario; The Story of Herman Atkins' Years Imprisoned as an Innocent Man Might Scare the Hell Out of You. It Should*, L.A. TIMES, June 25, 2000, at 16.

Similarly, an "unclear and ambiguous" FBI DNA report allowed Joyce Gilchrist to falsely claim that the FBI's DNA tests in Alfred Brian Mitchell's capital murder case were inconclusive and did not rule out the possibility Mitchell deposited the semen and sperm recovered from the victim. *See Mitchell v. Ward*, 150 F. Supp. 2d 1194, 1123, 1126 (W.D. Okla. 1999). The FBI's DNA examinations, however, unequivocally excluded Mitchell as a possible donor of the sperm or semen. The FBI even communicated this information to Gilchrist a year before she testified. *Id*. at 1126 ("Over a year before Petitioner was tried and convicted of rape and anal sodomy, Agent Vick's DNA testing revealed that Petitioner's DNA was not present on the samples tested.") (emphasis in original). The FBI's DNA analyst admitted, however, "that there [was] no way to tell from his report that: 1) he obtained no DNA profile results from the rectal swabs; 2) he obtained no DNA profile results unlike the victim for the vaginal swabs; and 3) he obtained no DNA profile results unlike the victim or Taylor for the panties." *Id*. The DNA analyst also "testified that it is clear from the report provided to the defense that Mitchell's DNA was not revealed in the FBI testing." *Id*. at 1126 n.46. In short, the FBI's terse DNA report failed to adequately inform Mitchell's attorneys that all DNA tests excluded Mitchell as a possible donor of the semen and sperm. *Id*. at 1126 n.45 ("the defense was not aware that the FBI's DNA testing revealed the critical fact that Mitchell's DNA was not present on the samples tested."). Moreover, the report was so "unclear and ambiguous" that another DNA expert failed to realize,

The forensic community has also failed to precisely define critical terms that are often used "in reports and in court testimony to describe findings, conclusions, and the degrees of association between evidentiary material (e.g., hairs, fingerprints, fibers) and particular people or objects." NAS Report, at 6-3. Such terms, as the NAS Report noted, "include but are not limited to 'match,' 'consistent with,' 'identical,' 'similar in all respects tested,' and 'cannot be excluded as the source of.'" *Id.*[88] This "imprecision in vocabulary stems in part from the *paucity of research in forensic science* and the corresponding limitations in interpreting the results of forensic analyses." *Id.* (emphasis added).

The NAS Report stressed that many forensic science disciplines, including bite mark identification, "critically need to standardize and clarify the terminology used in reporting and testifying about the results and in providing more information." *Id.* at 6-5. Precisely defining these terms is critical because, as the NAS Report explained, "such terms can have a profound effect on how the trier of fact in a criminal or civil matter perceives and evaluates evidence." *Id.*

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like defense counsel, that all the FBI's DNA tests excluded Mitchell. *Id.* at 1127. The Tenth Circuit Court of Appeals ultimately vacated Mitchell's death sentence because of the "unclear and ambiguous" report and Gilchrist's subsequent misconduct. *See Mitchell v. Gibson*, 262 F.3d 1036, 1063 (10th Cir. 2001) ("The laboratory performed DNA testing on these items and prepared a report, which was couched in convoluted language that did not clearly recite the test results.").

The Florida Supreme Court overturned Gerald D. Murray's first-degree murder conviction and death sentence in part because "there was a general sloppiness in documenting the [forensic] tests which even the analyst admitted was below the standards normally accepted." *Murray v. State*, 838 So. 2d 1073, 1081 (Fla. 2002). As the Florida Supreme Court explained: "Because of the clerical errors and the below-standard documentation and paperwork, other experts who were retained by the defense were unable to adequately review the test results since necessary portions of the documentation were missing." *Id.*

Finally, Guy Paul Morin's wrongful murder conviction in Canada can be attributed in part to forensic scientists who "failed to communicate accurately the limitations of their findings to ... the Court." Kent Roach, *Inquiring into the Causes of Wrongful Convictions*, 35 CRIM. L. BULL. 152, 162-63 (1999).

[88] The NAS Report also noted that "the forensic science disciplines have not reached agreement or consensus on the precise meaning of any of these terms." *Id.* at 6-3.

c. NO CERTIFICATION STANDARDS

Professional competence is typically determined by some recognized set of standards. For instance, would-be lawyers must take (and do well on) the LSAT to gain admission into law school and then pass the bar before they can step foot into a courtroom to argue a motion. Similarly, future doctors must take (and do well on) the MCAT to gain admission into medical school and then pass their medical boards before they can practice medicine. Many professions, even those where one's life or liberty is not at stake, require members to be licensed or certified.[89] This is not the case in forensic science because "most jurisdictions do not require forensic practitioners to be certified, and most forensic science disciplines have no mandatory certification programs." NAS Report, at S-4; *accord State v. Quintana*, 103 P.3d 168, 170 (Utah Ct. App. 2004) (Thorne, J., concurring) ("[M]ost evidence points to a lack of consistent training of [fingerprint] examiners and an absence of any nationally recognized standard to ensure that examiners are equipped to perform the tasks expected of them.").

Consequently, the forensic examiner's competency has routinely been gauged by two non-science individuals: judges and jurors. Judges decide whether an examiner is qualified to testify as an expert, while jurors decide whether the expert's testimony and conclusions are credible. Under this system, then, "courts are required to accept or reject the expert's own claims of expertise, or that of his employer, without the benefit of an impartial and rigorous assessment of his or her capabilities." Joseph L. Peterson & John E. Murdock, *Forensic Science Ethics: Developing an Integrated System of Support and Enforcement*, 34 J. FORENSIC SCI. 749, 750-51 (1989). This "case-by-case

[89] As the NAS Report explained: "In other realms of science and technology, professionals, including nurses, physicians, professional engineers, and some laboratorians, typically must be certified before they can practice." NAS Report, at 7-12.

adjudicatory approach... is not well suited to address the systematic problems in many of the various forensic science disciplines. Judicial review, by itself, will not cure the infirmities of the forensic science community." NAS Report, at 3-20.

The lack of mandatory certification programs is disconcerting because the "quality and relevance" of undergraduate and graduate forensic science programs is "uncertain." *Id*. at 8-16 ("It appears that there are no formal and systematically applied standards or standardization requirements for forensic science education programs, making the quality and relevance of existing programs uncertain."). Indeed, the NAS Report strongly suggested that current and past forensic science programs have not adequately trained students on the fundamental practices of science and the scientific method:

> To correct some of the existing deficiencies, it is crucially important to improve undergraduate and graduate forensic science programs. The legitimization of practices in the forensic science disciplines must be based on established scientific knowledge, principles, and practices, which are best learned through formal education.

Id. at 8-17.

While Drs. Sobel and David testified that they had been qualified as bite mark experts in several cases,[90] neither testified (nor could they) that they took and passed a national or state certification test establishing that they could accurately distinguish human bite marks from non-bite mark wounds and associate a bite mark to the one and only person who could have inflicted the bite mark to the exclusion of all others.

B. SPECIFIC FINDING REGARDING BITE MARK IDENTIFICATION

The NAS Report criticized many forensic techniques and forms of evidence, but it directed its harshest criticism at bite mark identification. Indeed, the NAS Report

[90] NT at 151, 207.

concluded that: (1) there is no evidence of an existing scientific basis for identifying an individual to the exclusion of all others; (2) the scientific basis is insufficient to conclude that bite mark comparisons can result in a conclusive match; (3) no thorough study has been conducted of large populations to establish the uniqueness of bite marks; (4) if a bite mark is compared to a dental cast, and the suspect providing the dental cast cannot be eliminated as a person who could have made the bite mark, there is no established science indicating what percentage of the population or subgroup of the population could also have produced the bite mark; (5) bite mark examiners rarely must undergo proficiency testing; (6) the limited proficiency testing results indicate a substantial error rate; and (7) the elasticity of the skin, the unevenness of the surface bite, and swelling and healing severely limit the validity of bite mark identification.

1. THE ASSUMPTIONS UNDERLYING BITE MARK IDENTIFICATION

Bite mark identification is premised on four assumptions; if any of these four assumptions are invalid, then bite mark identification is invalid:

1. The dental features of the biting teeth (six upper and six lower teeth) are unique.

2. This uniqueness remains constant throughout a person's lifetime.

3. These unique dental features can and are transferred and recorded every time the person bites into an impressionable object, such as human skin.

4. Trained forensic dentists can accurately determine whether a mark or wound on a person's body is a human bite mark and link the bite mark to the one and only person who could have left the distinct bite pattern.

See C. Michael Bowers, *The Scientific Status of Bitemark Comparisons*, in DAVID L. FAIGMAN, ET AL., MODERN SCIENTIFIC EVIDENCE: FORENSIC 483 (2008).

The NAS Report invalidated all four assumptions. Indeed, the NAS Report repeatedly singled-out bite mark identification for its shoddy scientific foundation and its significant error rate. For instance, the NAS Report stated: "Much forensic evidence—including, *for example, bite marks*… is introduced in criminal trials without any meaningful scientific validation, determination of error rates, or reliability testing to explain the limits of the discipline." NAS Report, at 3-18 (emphasis added). The NAS Report also stated: "The fact is that many forensic tests—such as those *used to infer the source of... bite marks*—have never been exposed to stringent scientific scrutiny. *Id*. at 1-6 (emphasis added). Similarly, the NAS Report stated that "there are important variations among the disciplines relying on expert interpretation. For example, there are more established protocols and available research for fingerprint analysis *than for the analysis of bite marks*." *Id*. at S-5 and S-6 (emphasis added).

a. THE PERMANENTLY UNIQUE ASSUMPTION

The NAS Report debunked the first three assumptions when it commented:

> No thorough study has been conducted of large populations to establish the uniqueness of bite marks; theoretical studies promoting the uniqueness theory include more teeth than are seen in most bite marks submitted for comparison. There is no central repository of bite marks and patterns.

Id. at 5-36. The NAS Report also stated:

> Although the methods of collection of bite mark evidence are relatively noncontroversial, there is considerable dispute about the value and reliability of the collected data for interpretation. Some of the key areas of dispute include the accuracy of human skin as a reliable registration material for bite marks, the uniqueness of human dentition, the techniques used for analysis, and the role of examiner bias.

Id. at 5-37. The NAS Report added:

> Unfortunately, bite marks on the skin will change over time and can be distorted by the elasticity of the skin, the unevenness of the surface bite,

> and swelling and healing. These features may severely limit the validity of forensic odontology. Also, some practical difficulties, such as distortions in photographs and changes over time in the dentition of suspects, may limit the accuracy of the results.

Id. at 5-37.

b. ACCURACY ASSUMPTION

The NAS Report debunked the accuracy assumption when it commented:

> Failure to acknowledge uncertainty in findings is common [in forensic science]: Many examiners claim in testimony that others in their field would come to the exact same conclusions about the evidence they have analyzed. Assertions of a "100 percent match" contradict findings of proficiency tests that find *substantial rates of erroneous results in some disciplines* (i.e., voice identification, *bite mark analysis*).

Id. at 1-9 and 1-10 (emphasis added). The NAS Report also commented on the "high percentage of false positive matches of bite marks using controlled comparison studies." *Id*. at 5-36.

2. OTHER ISSUES REGARDING BITE MARK IDENTIFICATION

a. CANNOT INDIVIDUALIZE BITE MARKS

Drs. Sobel and David testified that they could individualize the bite mark on Seaman's shoulder to Kunco's bite pattern to the exclusion of all others. The NAS Report proves that these conclusions are invalid: "Bite mark testimony has been criticized basically on the same grounds as testimony by questioned document examiners and microscopic hair examiners. The *committee received no evidence of an existing scientific basis for identifying an individual to the exclusion of all others*." NAS Report, at 5-37 (emphasis added).

Moreover, bite mark examiners cannot even opine as to the likelihood of a coincidental match because there is no base rate data regarding the characteristics of teeth

and bite patterns. Indeed, the NAS Report repeatedly acknowledged this fundamental shortcoming of bite mark identification:

> Often in criminal prosecutions… forensic evidence is offered to support conclusions about "individualization" (sometimes referred to as "matching" a specimen to a particular individual or other source)… With the exception of nuclear DNA analysis, however, no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source.

Id. at S-5. The NAS Report also stated that while "the majority of odontologists are satisfied that bite marks can demonstrate sufficient detail for positive identification, *no scientific studies support this assessment, and no large population studies have been conducted*." *Id*. at 5-37 (emphasis added). The NAS Report added:

> More research is needed to confirm the fundamental basis for the science of bite mark identification. Although forensic odontologists understand the anatomy of teeth and the mechanics of biting and can retrieve sufficient information from bite marks on skin to assist in criminal investigations and provide testimony at criminal trials, *the scientific basis is insufficient to conclude that bite mark comparisons can result in a conclusive match*.

Id. at 5-36 (emphasis added).[91] Finally, the NAS Report stated:

> If a bite mark is compared to a dental cast using the guidelines of the ABFO, and the suspect providing the dental cast cannot be eliminated as a person who could have made the bite, *there is no established science indicating what percentage of the population or subgroup of the population could also have produced the bite*. This follows from the basic problems inherent in bite mark analysis and interpretation.

Id. at 5-36 (emphasis added).

b. NO STANDARDS FOR DETERMINING A MATCH

[91] The NAS Report acknowledged that, "[d]espite the inherent weakness in bite mark comparison, it is reasonable to assume that the process can sometimes reliably exclude suspects." NAS Report, at 5-37.

Like many other forensic identification techniques, there are no empirically validated standards and procedures that allow forensic dentists to associate an unknown bite mark to a known bite pattern. The NAS Report acknowledged this fundamental shortcoming: "[T]here is still no general agreement among practicing forensic odontologists about national or international standards for comparison." *Id*. at 5-37.[92] Moreover, even when guidelines have been developed, the NAS Report noted that "there is no incentive or requirement that these guidelines be used in the criminal justice system." *Id*. at 5-36. Consequently, "there is no science on the reproducibility of the different methods of analysis that lead to conclusions about the probability of a match. This includes reproducibility between experts and with the same expert over time. Even when using the guidelines, different experts provide widely differing results and a high percentage of false positive matches of bite mark using controlled comparison studies." *Id*. at 5-35 and 5-36.

c. CONTEXTUAL BIAS ISSUES

The NAS Report also acknowledged that bite mark identification, like all other forensic techniques, is very susceptible to context biases.

> As with other "experienced-based" forensic method, forensic odontology suffers from the *potential for large bias among bite mark experts* in evaluating a specific bite mark in cases in which polices agencies provide the suspects for comparison and a limited number of models from which to choose from in comparing the evidence. Bite marks often are associated with highly sensationalized and prejudicial cases, and there can

[92] Similarly, the experts who have testified in reported bite mark cases have used a low of eight points of comparison to a high of fifty-two points. *E.g.*, *State v. Garrison*, 585 P.2d 563, 566 (Ariz. 1978) (10 points); *People v. Slone*, 143 Cal. Rptr. 61, 62 (Cal. Ct. App. 1978) (10 points); *People v. Milone*, 356 N.E.2d 1350, 1356 (Ill. App. Ct. 1976) (29 points); *State v. Sager*, 600 S.W.2d 541, 564 (Mo. Ct. App. 1980) (52 points); *State v. Green*, 290 S.E.2d 625, 630 (N.C. 1982) (14 points); *State v. Temple*, 273 S.E.2d 273, 279 (N.C. 1981) (8 points); *Kennedy v. State*, 640 P.2d 971, 976 (Okla. Crim. App. 1982) (40 points); *State v. Jones*, 259 S.E.2d 120, 124 (S.C. 1979) (37 points).

> be a great deal of pressure on the examining expert to match a bite mark to a suspect.

Id. at 5-36.

3. SUMMARY OF BITE MARK IDENTIFICATION'S SHORTCOMINGS

The NAS Report summarized "the basic problems inherent" in bite mark identification as follows:

> (1) The uniqueness of the human dentition has not been scientifically established.
> (2) The ability of the dentition, if unique, to transfer a unique pattern to human skin and the ability of the skin to maintain that uniqueness has not been scientifically established.
>
> i. The ability to analyze and interpret the scope or extent of distortion of bite mark patterns on human skin has not been demonstrated.
>
> ii. The effect of distortion on different comparison techniques is not fully understand and therefore has not been quantified.
>
> (3) A standard for the type, quality, a number of individual characteristics required to indicate that a bite mark has reached a threshold of evidentiary value has not been established.

Id. at 5-37.

V. THE NAS REPORT'S IMPACT ON KUNCO'S CASE

The NAS Report's impact on Kunco's conviction is obvious and significant—it completely demolishes the lone item of evidence used to convict Kunco. Indeed, the NAS Report systematically deconstructs Drs. Sobel's and David's bite mark testimony. Drs. Sobel and David both testified that they could compare an unknown bite mark inflicted into human skin (and exposed and captured via UV-lighting) to a known bite pattern and determine whether the known bite pattern inflicted the unknown bite mark to the exclusion of all others. The impact of Drs. Sobel's and David's testimony on the jury is evident; the only evidence that allegedly linked Kunco to Seaman's brutal assault is the

bite mark evidence. The Commonwealth repeatedly conceded this point in its post-conviction pleadings. Drs. Sobel and David also conceded this point in their 1994 *Journal of Forensic Science* article when they wrote that their testimony "was *essential* to establishing an evidentiary link between the victim and [Kunco]. Without this critical piece of evidence, it is unlikely that there would have been sufficient evidence to support a conviction for this vicious crime."[93] Thus, without the bite mark evidence, no "rational trier of fact could have found the essential elements of the crime beyond a reasonable doubt." *Jackson v. Virginia*, 443 U.S. 307, 319 (1979). Consequently, the jury's decision to convict Kunco is (and must be) premised entirely on the bite mark evidence.

More importantly, by convicting Kunco, the jury *had to make* the following conclusions (either implicitly or explicitly) regarding Drs. Sobel's and David's bite mark testimony:

- An individual's teeth and his bite pattern are unique and remain unique throughout the course of his life.
- When a perpetrator bites a victim's body, the unique characteristics of the perpetrator's teeth and bite pattern are transferred to the victim's body.
- The procedures and methods utilized by qualified bite mark experts can accurately identify the unique teeth and bite pattern characteristics that have been inflicted onto the victim's skin.
- The unique teeth and bite pattern characteristics inflicted onto the victim's body can be accurately identified five months after the perpetrator inflicted the bite mark.
- The procedures used by Drs. Sobel and David to expose, capture, compare, and individualize the bite mark on Seaman's shoulder to Kunco's bite mark are *reliable* and *valid*.

[93] Thomas J. David & Michael N. Sobel, *Recapturing a Five-Month-Old Bite Mark by Means of Reflective Ultraviolet Photography*, 39 J. FORENSIC SCI. 1560, 1562, 1567 (1994) (emphasis added).

- It is scientifically possible to conclusively link an unknown bite mark (from human skin) to a known bite pattern to the exclusion of all others.

- Qualified bite mark experts are capable of accurately linking an unknown bite mark (from human skin) to a known bite pattern to the exclusion of all others.

The NAS Report invalidates each conclusion that buttresses Kunco's conviction.

First, there is no scientific research establishing the uniqueness of teeth and human dentitions. Moreover, there is no data base that catalogues different teeth characteristics so that bite mark examiners can at least opine as to the likelihood of a coincidental match.

Second, there is no scientific evidence establishing that a person's teeth remain the same (or unique) throughout his or her life.

Third, there is no scientific evidence establishing that human skin can accurately and consistently capture the minute details of a person's teeth and bite pattern.

Fourth, there is no scientific evidence establishing that the procedures used by Drs. Sobel and David are reliable. A procedure is reliable only if other bite mark experts arrive at the same conclusion as Drs. Sobel and David—i.e., consistency of conclusions. As the NAS Report repeatedly mentioned, no one method of bite mark identification has produced consistent results when utilized by different bite mark experts. Moreover, the Commonwealth and Drs. Sobel and David failed to introduce a scintilla of evidence regarding the reliability of their procedures.

Fifth, there is no scientific evidence establishing that the procedures used by Drs. Sobel and David are valid. A procedure is valid only if it is able to consistently produce correct results—i.e., accuracy of results. Neither the Commonwealth nor Drs. Sobel and David broached the error rate issue at trial. Thus, not a shred of evidence was introduced

establishing that Drs. Sobel and David could accurately link—on a consistent basis—an unknown bite mark to a known bite pattern. Moreover, as the NAS Report emphasized, the limited proficiency testing data indicates that bite mark identification has the highest error rate for any forensic identification technique.

Sixth, there are no standards for determining a match or individualizing a bite mark. With no standards, match and individuality determinations are left to the bite mark expert's unguided subjective judgment. Moreover, the lack of standards prevents reproducibility and validation of matches and identifications. The inability to reproduce Drs. Sobel's and David's identifications renders their identifications invalid.

Seventh, contextual biases likely tainted Drs. Sobel's and David's identifications. Drs. Sobel and David conducted single-sample testing: they only compared Kunco's bite pattern with the bite mark. Single-sample forensic testing is equivalent to an eyewitness show-up. A show-up is an identification procedure where an eyewitness is presented with a single suspect for identification.[94] Eyewitness research has continually recognized an assortment of problems associated with show-ups.[95] The U.S. Supreme Court has even commented that a show-up raises reliability concerns because it is a highly "suggestive procedure." *Manson v. Brathwaite*, 432 U.S. 98, 107 (1976).

Considering forensic examiners and eyewitnesses perform comparable identification tasks, the same weaknesses undoubtedly emerge during single-sample forensic evaluations. The biggest drawback is the identifier immediately expects (consciously or unconsciously) to find inculpatory value in the object being viewed. This

[94] *See* TECHNICAL WORKING GROUP FOR EYEWITNESS EVIDENCE, UNITED STATES DEP'T OF JUSTICE, EYEWITNESS EVIDENCE: A GUIDE FOR LAW ENFORCEMENT (1999).

[95] *See* Gary L. Wells et al., *Eyewitness Identification Procedures: Recommendations for Lineups and Photospreads*, 22 LAW & HUM. BEHAV. 603 (1998).

expectation is rational because most individuals presume law enforcement officials do not simply collect objects or arrest individuals for no reason. The reasonable inference is if law enforcement felt so compelled to collect evidence or detain a suspect that they must have had more than a sneaking suspicion the evidence or suspect is in some way connected to the criminal offense. Research supports this notion; in one study researchers discovered that 90% of forensic examinations result in an inculpatory finding.[96]

Judge Nancy Gertner has commented on the inherent problems with forensic evidence show-ups in two cases. In her most recent opinion regarding the admissibility of firearms evidence Judge Gertner wrote:

> The only weapon [the Government's expert] was shown was the suspect one; the only inquiry was whether the shell casings found earlier matched it. It was, in effect, an evidentiary "show-up," not what scientists would regard as a "blind" test. He was not asked to try to match the casings to the other test-fired Hi Point weapons in police custody, or any other gun for that matter, an examination more equivalent to an evidentiary "line-up." His work was reviewed by another officer, who did the same thing—checked his conclusions under the same conditions—another evidentiary "show-up."

United State v. Green, 405 F. Supp. 2d 104, 107-8 (D. Mass. 2005). Judge Gertner made a similar observation with respect to handwriting experts:

> Indeed, [Professor] Denbeaux draws an interesting analogy to eyewitness identification. Courts have concluded, as a matter of law, that one-on-one show-ups are unduly suggestive. Likewise, Denbeaux suggests, are one-on-one handwriting comparisons. The outcome of this analysis, for example, may be different if Harrison were given a 'lineup' of similar handwriting exemplars to review, and asked to determine which of this group is most similar to the robbery note author.

[96] *See* JOSEPH L. PETERSON ET AL., FORENSIC EVIDENCE AND THE POLICE 117 (National Institute of Justice Research Report, 1984).

United States v. Hines, 55 F.Supp.2d 62, 69-70 (D. Mass. 1999). As Judge Gertner astutely commented: "[A]n identification would be open to far less criticism if it were similar to that of photo identification. In other words, using several unidentified writings and then determining if any of the writings were produced by the same individual." *Id*. at 70 n.20.

More importantly, the prosecutor provided Drs. David and Sobel with extraneous or "domain irrelevant" information before they evaluated the five-month-old bite mark.[97] According to their 1994 *Journal of Forensic Science* article, before they examined the bite mark they knew that: (1) Seaman identified Kunco via voice identification; (2) the forensic evidence collected failed to link Kunco to the assault; and (3) because the other forensic evidence proved inconclusive, the bite mark evidence was the last item of evidence that could possibly link Kunco to the sexual assault. As Drs. David and Sobel wrote:

> The victim was able to identify the suspect, despite not having seen his face, because he spoke with a lisp and was known to her. The crime scene evidence was processed and although a great deal of forensic evidence was collected, comparison of crime-scene evidence with blood and hair samples from the suspect proved inconclusive.
>
> … Since the other forensic evidence… was inconclusive, the bite mark know became crucial to the case.[98]

[97] "Domain-irrelevant" information is information that is unnecessary to render an opinion. For instance, in a rape case, a fingerprint examiner need not know that DNA analysts linked the prime suspect's DNA to DNA recovered from the victim's underwear. Likewise, in a firearms homicide, the prosecutor's firearms examiner need not know that five people identified the defendant as the shooter. In both examples, the irrelevant information—the DNA link and the eyewitness evidence—significantly increases the likelihood that observer effects will affect the fingerprint and firearms examiners' conclusions.

[98] Thomas J. David & Michael N. Sobel, *Recapturing a Five-Month-Old Bite Mark by Means of Reflective Ultraviolet Photography*, 39 J. FORENSIC SCI. 1560, 1561 (1994).

The clear inference of this information was that the prosecutor believed Kunco was guilty, but that he needed "direct" evidence to link Kunco to the sexual assault. Thus, the prosecutor not only provided Drs. David and Sobel with domain irrelevant information (i.e., Seaman already identified Mr. Kunco through voice identification and no other forensic evidence incriminated Mr. Kunco),[99] he created a clear expectation (i.e., "I think John Kunco is guilty. Thus, I think his bite pattern will match the bite mark"). This expectation-inducing, domain irrelevant information significantly increased the likelihood that Drs. David and Sobel resolved any ambiguities regarding the five-month-old bite mark in a manner consistent with the prosecutor's expectation, even if this expectation was incorrect.

Individually and collectively, each of these factors render Drs. Sobel's and David's bite mark testimony false, misleading, and inherently unreliable. This in turn renders Kunco's conviction unconstitutional pursuant to state and federal law.

VI. ARGUMENTS

The purpose of the PCRA Act is to prevent a "fundamentally unfair conviction," *Commonwealth v. Weinder*, 577 A.2d 1364, 1374 (Pa. Super. 1990), and to "provide an action where persons convicted of crimes they did not commit… may obtain collateral relief." *Commonwealth v. Carbone*, 707 A.2d 1145, 1148 (Pa. Super. 1998) (citing 42 Pa.C.S.A. § 9542).[100] Furthermore, the "goal of the Post Conviction Hearing Act is to

[99] This information is irrelevant because odontologists do not need to know that the victim identified her assailant either through eyewitness identification or voice identification. The only information that an odontologist needs to render an identification or an exclusion is the questioned bite mark and the suspect's bite pattern.

[100] 42 Pa.C.S.A. § 9542 states in pertinent part: "This subchapter provides for an action by which persons convicted of crimes they did not commit and persons serving illegal sentences may obtain collateral relief."

afford relief to a convict whom the system may have failed." *Commonwealth v. Robinson*, 496 A.2d 402, 402 (Pa. Super. 1985).

These principles apply with equal force to Kunco's case. Not only is Kunco innocent of the crime for which he stands convicted, his "fundamentally unfair conviction" is a direct result of "systemic failures" by Westmoreland County's criminal justice system and the forensic science system.

A. PCRA'S STATUTORY REQUIREMENTS

Kunco must satisfy four general requirements to be eligible for relief under the PCRA Act. *See* 42 Pa. C.S. § 9543(a)(1)-(a)(4).[101]

First, Kunco must show that he has been convicted of a crime under the laws of this Commonwealth and is serving a sentence of imprisonment, probation or parole for the crime, awaiting execution of a death sentence for the crime or serving a sentence that must expire before the individual has to commence serving the disputed sentence. *See* 42 Pa. C.S. §9543(a)(1).

Second, Kunco must have a cognizable claim—i.e., Kunco's conviction or sentence must have resulted from one or more of seven categories of errors or violations specified in the PCRA Act. *See* 42 Pa. C.S. §9543(a)(2).

Third, Kunco must show that claims raised have not been previously litigated or waived. If a claim has been finally litigated it cannot be raised again; if it has not been previously litigated, it can be raised at the PCRA level only if the individual can show that the claim has not been waived. *See* 42 Pa. C.S. §9543(a)(3). An issue is previously litigated if the highest court to which the petitioner could have appealed as a matter of

[101] In general, an individual applying for PCRA relief must be able to plead and prove by a preponderance of the evidence the existence of all of the prerequisites.

right has addressed the issue on its merits. *See* 42 Pa. C.S. § 9544(a); *Commonwealth v. Perlman*, 572 A.2d 2, 4 (Pa. Super. 1990); *Commonwealth v. McFadden*, 587 A.2d 740, 742 (Pa. Super. 1991).

Fourth, Kunco must demonstrate that the failure to litigate could not have been a rational, tactical, or strategic choice by counsel. *See* 42 Pa C.S. § 9543(a)(4).

Besides the foregoing prerequisites, Kunco must also satisfy additional requirements before a PCRA court can claim jurisdiction. *See* 42 Pa. C.S. § 9545(b).

First, any petition under the PCRA, including second or subsequent petitions, must be filed within one year of the date the judgment becomes final, unless the petition alleges and the petitioner proves that:

(1) the failure to previously raise the claim was the result of interference by government officials with the presentation of the claim in violation of the Constitution or laws of this Commonwealth or the Constitution or laws of the United States;

(2) the facts upon which the claim is predicated were unknown to the appellant and could not have been ascertained by the exercise of due diligence; or

(3) the right asserted is a constitutional right that was recognized by the Supreme Court of the United States or the Supreme Court of Pennsylvania after the time period provided in this section and has been held by that court to apply retroactively. *See* 42 Pa. C.S. § 9545(b)(1).

Second, any petition asserting one of the exceptions shall be filed within 60 days of the date the claim could have been raised. *See* 42 Pa. C.S. § 9545(b)(1).

Third, for purposes of the PCRA Act, a judgment becomes final at the conclusion of direct review, including discretionary review in the Supreme Court of the United

States and the Supreme Court of Pennsylvania, or at the expiration of time for seeking review.

Fourth, for purposes of the PCRA Act, "government officials" shall not include defense counsel, whether appointed or retained.

In light of the foregoing, current counsel will demonstrate that Kunco's instant Petition satisfies all the aforementioned requirements. Therefore, the Court has jurisdiction to consider and rule on the merits of his new state and federal constitutional claims.

Should this Court find this Petition in whole or in part to be defective in any respect, Kunco requests, pursuant to the Rules of Criminal Procedure, that the Court notify undersigned counsel of the nature of any defects and afford an opportunity to rectify them. *See* PA. R. CRIM. P. 905(B) ("When a petition for post-conviction relief is defective as originally filed, the judge shall order amendment of petition, indicate the nature of the defects, and specify the time within which an amended petition shall be filed."); *Commonwealth v. McGill*, 832 A.2d 1014, 1024 (Pa. 2003) (remanding for renewed PCRA proceedings, because Rule 905(B) "indicates the desire of this Court to provide PCRA petitioners with a legitimate opportunity to present their claims to the PCRA court in a manner sufficient to avoid dismissal due to a correctable defect in claim pleading or presentation.").

B. KUNCO IS CURRENTLY INCARCERATED AT SCI-FAYETTE

Kunco is currently incarcerated at SCI-Fayette. The first prerequisite is satisfied. *See* 42 Pa. C.S. §9543(a)(1).

C. KUNCO'S ALLEGES COGNIZABLE CLAIMS OF ERROR

Kunco alleges state and federal constitutional violations that: (1) undermined the truth-determining process; (2) establish ineffective assistance of counsel; and (3) demonstrate that his sentence is illegal. *See* 42 Pa. C.S. §§ 9543(a)(2)(i), 9543(a)(2)(ii) and 9543(a)(2)(vii). The second requirement is satisfied.

To the extent that the Commonwealth argues, or this Court finds, that any of the claims presented by Kunco in these proceedings are not cognizable under the PCRA, Kunco specifically seeks substantive review of these claims, and relief, under Article I, § 14 of the Pennsylvania Constitution, which guarantees his state constitutional right to habeas corpus. *See Commonwealth v. Peterkin*, 722 A.2d 638, 640 (Pa. 1998) ("the writ [of habeas corpus] continues to exist… in cases in which there is no remedy under the PCRA."). Because the writ of habeas corpus is secured by the Pennsylvania Constitution, it may not be constrained by legislative action, and consequently any claims that are not cognizable under the PCRA statute must be amendable to other mechanisms of post-conviction review, such as this petition for habeas corpus relief under Article I, § 14.

Absent this alternative mechanism, the PCRA statute would be unconstitutional for suspending the state constitutional right to habeas corpus relief for those claims (Art. I, § 14) and violating Kunco's state constitutional right to life and liberty (Art. I, § 1), his right of access to open courts for review of those claims (Art. I, § 11), his right to due process and effective assistance of counsel (Art. 1, § 9), and his right to the guarantees of free speech (Art. I, § 7).

D. KUNCO'S CLAIMS HAVE NOT BEEN PREVIOUSLY LITIGATED OR WAIVED

The issues raised by Kunco involve facts and legal arguments not previously considered by this Court or by the Pennsylvania Supreme Court, and none of Kunco's claims rest solely on previously litigated evidence.

Kunco proffers evidence, legal argument, and claims that have not been previously presented to this Court, the Pennsylvania Superior Court, or the Pennsylvania Supreme Court. The Pennsylvania Supreme Court has held that claims are reviewable when the petitioner does not rely solely on previously litigated evidence. Moreover, even previously litigated legal theories are cognizable if they are presented as ineffective assistance of counsel claims. *See Commonwealth v. Collins*, 888 A.2d 564 (Pa. 2005).

E. THE COURT MAY ENTERTAIN KUNCO'S CURRENT PETITION BECAUSE KUNCO PRESENTS STRONG EVIDENCE THAT A MISCARRIAGE OF JUSTICE MAY HAVE OCCURRED

Kunco's current PCRA petition constitutes a second or subsequent petition. The Court may entertain his second or subsequent petition because Kunco "presents a strong prima facie showing that a miscarriage of justice *may* have occurred." *Commonwealth v. Carpenter*, 725 A.2d 154, 160 (Pa. 1999) (emphasis added); *accord Commonwealth v. Lawson*, 549 A.2d 107, 112 (1988). A petitioner makes a prima facie showing "only if he demonstrates that either [a] the proceedings which resulted in his conviction were so unfair that a miscarriage of justice occurred which no civilized society could tolerate, or [b] that he was innocent of the crimes for which he was charged." *Commonwealth v. Szuchon*, 633 A.2d 1098, 1100 (1993).

Kunco satisfies these requirements. The NAS Report's findings and conclusions regarding the bite mark evidence demonstrates that the "proceedings which resulted in" Kunco's conviction "were so unfair that a miscarriage of justice occurred which no

civilized society could tolerate." Indeed, had the jury been privy to the NAS Report's findings and conclusions, no "rational" or "reasonable" juror "could have found the essential elements of the crime beyond a reasonable doubt." *Jackson v. Virginia*, 443 U.S. at 319; *see also House v. Bell*, 547 U.S. 518, 538 (2006).

F. KUNCO'S INSTANT PCRA PETITION IS TIMELY

If a PCRA petition is untimely, a PCRA court has no jurisdiction over the petition. *See Commonwealth v. Murray*, 753 A.2d 201, 202-03 (Pa. 2000). According to 42 Pa. C.S §9545(b)(1), PCRA petitions must ordinarily be filed within one year of the date the judgment becomes final. The statute, however, provides several exceptions to this rule. Section 9545(b) states:

(b) Time for Filing a Petition.
(1) Any petition under this subchapter, including a second or subsequent petition shall be filed within one year of the date the judgment becomes final, unless the petitioner proves that
(i) the failure to raise the claim previously was the result of interference by government officials with the presentation of the claim in violation of the constitutional laws of the Commonwealth or the Constitutional laws of the United States; or
(ii) the facts upon which the claim is predicated or known to the petitioner could not have been ascertained by the exercise of due diligence…
(2) Any petition invoking an exception provided in (1) shall be filed within *sixty (60) days of the date the claim could have been presented***.**
(3) For purposes of this subchapter, a judgment is final at the conclusion of direct review, including discretionary review in the Supreme Court of the United States and the Supreme Court of Pennsylvania or the expiration of time for seeking the review.

The "exceptions are triggered by an event that occurs outside the control of the petitioner." *Commonwealth v. Bennett*, 930 A.2d 1264, 1267 (Pa. 2007). Moreover, the Pennsylvania Supreme Court has repeatedly stated that it is the petitioner's burden to allege and prove that one of the timeliness exceptions applies. *See Commonwealth v. Beasley*, 741 A.2d 1258, 1261 (Pa. 1999). In short, "the law is clear that neither of the

statutory exceptions to the timeliness requirement can begin with a discussion of the merits of a [particular] claim; rather, [petitioner] must begin with a discussion of why the instant petition was timely filed." *Commonwealth v. Stokes*, --A.2d--, 2008 WL 4952573, at 2 (Pa., Nov. 21, 2008); *Commonwealth v. Abu-Jamal*, 941 A.2d 1263, 1268 (Pa. 2008).

Kunco's petition is timely because he alleges and proves that the NAS Report's findings and conclusions trigger subsections (b)(1)(i) and (ii).

1. GOVERNMENT INTERFERENCE

To trigger subsection (b)(1)(i)'s timeliness exception, petitioners may plead and prove that the Commonwealth violated its *Brady* responsibilities. *See Commonwealth v. Beasley*, 741 A.2d 1258, 1261 (Pa. 1999).[73] To prevail on a *Brady* claim, a petitioner must demonstrate that "the evidence was favorable to [him], either because it is exculpatory or because it impeaches; the evidence was suppressed by the prosecution, either willfully or inadvertently; and prejudiced ensued." *Commonwealth v. Burke*, 781 A.2d 1136, 1141 (Pa. 2001). No *Brady* violation occurs where the petitioner knew or could have uncovered the evidence with reasonable diligence. *See Commonwealth v. Johnson*, 863 A.2d 423, 426 (Pa. 2004); *Commonwealth v. Morris*, 822 A.2d 684, 696 (Pa. 2003). Kunco satisfies each requirement.

The prosecution's duty in a criminal case is not to win the case, but to seek justice. *See Berger v. United States*, 295 U.S. at 88. Due process requires a prosecutor to disclose favorable evidence to the accused that is material to either guilt or punishment. *See Brady v. Maryland*, 373 U.S. 83, 87 (1963); *Kyles v. Whitely*, 514 U.S. 419, 437 (1995); *Commonwealth v. Burke* 781 A.2d at 1141. The duty to disclose continues past a

[73] *See Brady v. Maryland*, 373 U.S. 83 (1963).

defendant's arrest, conviction, and sentencing. *E.g.*, *Commonwealth v. Strong*, 761 A.2d 1167 (Pa. 2000); (PCRA relief granted where *Brady* claim was based upon post-conviction discovery of prosecution file.").[102]

Favorable evidence under *Brady* includes evidence that impeaches the prosecution's theory or witnesses. *See United States v. Bagley*, 473 U.S. 667, 676 (1985); *Napue v. Illinois*, 360 U.S. 264, 269 (1959); *Commonwealth v. Strong*, 761 A.2d at 1175. Moreover, defense counsel is entitled to rely on the presumption that prosecutors will fairly "discharge[] their official duties," *United States v. Mezzanatto*, 513 U.S. 196, 210 (1995); *accord Bracy v. Gramley*, 520 U.S. 899, 909 (1997), and that the prosecutor shall act as the "representative… of a sovereignty whose obligation [is] to govern impartially… and whose interest, therefore, in a criminal prosecution is not that it shall win the case, but that justice shall be done." *Berger v. United States*, 295 U.S. at 88.

a. THE COMMONWEALTH FAILED TO DISCLOSE IMPEACHMENT AND EXCULPATORY EVIDENCE

The NAS Report establishes that the Commonwealth and Drs. Sobel and David knew the following:

- there is no evidence of an existing scientific basis for identifying an individual to the exclusion of all others;
- the scientific basis is insufficient to conclude that bite mark comparisons can result in a conclusive match;

[102] *Accord Commonwealth v. Williams*, 732 A.2d 1167, 1175-76 (Pa. 1999); *Pennsylvania v. Ritchie*, 480 U.S. 39, 60 (1987) (holding that the "duty to disclose is ongoing"); *Imbler v. Pachtman*, 424 U.S. 409, 427 n.25 (1976) (holding that "the prosecutor is bound by the ethics of his office" to disclose information that may "cast doubt upon the correctness of the conviction"); *Thomas v. Goldsmith*, 979 F.2d 746, 749-50 (9th Cir. 1992) (holding that the State has a due process duty to disclose potentially exculpatory evidence during federal habeas proceedings); *Wade v. Brady*, 460 F. Supp. 2d 226 (D. Mass. 2006) (holding that *Brady's* requirement to disclose exculpatory evidence continues to exist post-conviction, especially when biological evidence exists which can be subjected to DNA testing); *Godschalk v. Montgomery County District Attorney's Office*, 177 F. Supp. 2d 366 (E.D. Pa. 2001) (same).

- no thorough study has been conducted on large populations to establish the uniqueness of bite marks;

- if a bite mark is compared to a dental cast, and the suspect providing the dental cast cannot be eliminated as a person who could have made the bite, there is no established science indicating what percentage of the population or subgroup of the population could also have produced the bite mark;

- bite mark examiners rarely must undergo proficiency testing;

- the limited proficiency testing results indicate a substantial error rate; and

- the elasticity of the skin, the unevenness of the surface bite, and swelling and healing severely limit the validity of bite mark identification.

Drs. Sobel and David and the Commonwealth failed to disclose this exculpatory and impeachment information to Kunco's trial attorneys. Moreover, even if the Commonwealth did not know about this information, this beside the point. Drs. Sobel and David were Commonwealth agents, acting on its behalf, when they examined the bite mark evidence and testified at trial, and, as such, their knowledge of this information is (and was) imputed to the Commonwealth. *See Kyles v. Whitley*, 514 U.S. at 437 ("The individual prosecutor has a duty to learn of any favorable evidence known to the others acting on the government's behalf in the case, including the police.").[103]

[103] *See also Gibson v. Superintendent of N.J. Dep't of Law & Pub. Safety-Division of State Police*, 411 F3d 427, 442 (3d Cir. 2005) ("The prosecutor's duty to disclose extends beyond the information that he or she possesses, to include information in the hands of police investigators working on the case."); *Commonwealth v. Gibson*, 951 A.2d 1110, 1127 (Pa. 2008) ("The prosecution's duty under *Brady* incorporates disclosure of all exculpatory evidence, regardless of whether the defense specifically requests such materials, and extends to evidence in the possession of police agencies of the same government bringing the prosecution."); *Commonwealth v. Carson*, 913 A.2d 220, 244 (2006); *Commonwealth v. Lambert*, 884 A.2d 848, 854 (2005). As the Third Circuit explained in *Gibson*: "A prosecutor is 'the 'architect' of the criminal proceeding' and therefore 'has a responsibility not just to disclose what he or she knows, but to learn of favorable evidence known to others acting on the government's behalf, weigh the materiality of all favorable evidence and disclose such evidence when it is reasonably probable that it will affect the result of the proceedings.'" *Gibson v. Superintendent of N.J. Dep't of Law & Pub. Safety-Division of State Police*, 411 F.3d at 443.

b. DUE DILIGENCE

Kunco must plead and prove that he could not have obtained the facts underlying his new state and federal constitutional claims until February 17, 2009 even through the exercise of due diligence. *Commonwealth v. Stokes*, --A.2d--, 2008 WL 4952573, at 3 (Pa., Nov. 21, 2008); *Commonwealth v. Breakiron*, 781 A.2d 94, 98 (2001). Kunco satisfies this requirement.

The NAS had complete control and discretion as to how it framed its findings, conclusions, and recommendations and to when it released its final report. Kunco's new state and federal constitutional claims are premised entirely on the NAS Report's findings, conclusions, and recommendations. As such, Kunco could not have obtained this information any sooner than February 17, 2009–the date the NAS released its final report. *See Commonwealth v. Fisher*, 870 A.2d 864, 870 (Pa. 2005) ("we agree with the PCRA court to the extent that this information" from the National Academy of Science's report on Comparative Bullet Lead Analysis "only became available to Petitioner in November of 2003 when it was reported").

c. PREJUDICE

To answer the prejudice inquiry, a PCRA court must determine "whether 'the favorable evidence could reasonably be taken to put the whole case in such a different light as to undermine confidence in the verdict.'" *Strickler v. Greene*, 527 U.S. 263, 290 (1999) (citation omitted); *accord Commonwealth v. Burke*, 781 A.2d at 1141. Prejudice or "materiality" must be assessed "collectively, not item by item." *Kyles v. Whitley*, 514 U.S. at 436. Relying on this standard, the failure to disclose the aforementioned exculpatory and impeachment evidence prejudiced Kunco.

Kunco's conviction is premised entirely on the bite mark evidence; without Drs. Sobel's and David's testimony the Commonwealth could not link Kunco to Seaman's assault.[104] The prosecutor's closing argument emphasized the importance of the bite mark evidence and what it meant for the Commonwealth's case.[105] Moreover, as one court recently commented, the very nature of bite mark evidence is highly probative of guilt:

> Bite mark evidence is more persuasive on the ultimate issue of guilt than other analogous forms of evidence. For example, fingerprints tend to be circumstantial or associative; that is, they rarely decide a case alone, but tend to link a defendant to the scene of the crime or an object involved in the crime. By contrast, bite marks, in the usual case, will be conclusive of the guilt issue: the logical distance between the fact of biting and the ultimate issue of guilt is short. Thus, admission of irrelevant bite mark evidence may be particularly prejudicial to the defendant.

Ege v. Yukins, 380 F. Supp. 2d 852, 879 (E.D. Mich. 2005) (citation omitted). Consequently, had Drs. Sobel and David and the Commonwealth timely disclosed the aforementioned information prior to trial, trial counsel could have effectively undermined the lone column that buttressed his conviction.

First, had the Commonwealth timely disclosed this information, trial counsel could have moved for a quasi-*Frye* hearing, pursuant to the Due Process Clauses of the United States and Pennsylvania Constitutions, compelling the Commonwealth to establish the validity and reliability of Drs. Sobel's and David's bite mark testimony.[106]

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[104] The only other circumstantial evidence introduced by the Commonwealth was Seaman's very questionable and suspicious voice identification. According to the U.S. Supreme Court, "Voice identifications involve 'grave danger of prejudice to the suspect[.]'" *Biggers v. Tennessee*, 390 U.S. 404, 408 (1968).

[105] NT at 453, 456.

[106] Such a hearing would not technically be considered a true *Frye* hearing because Pennsylvania courts had, for years, generally accepted bite mark evidence. Instead, the focus on the hearing would be to re-assess or re-evaluate the initial general acceptance determination in light of the information disclosed by Drs. Sobel and David. In essence, Kunco's trial counsel

Similarly, trial counsel could have challenged the trial judge's implicit decision to judicially notice the general acceptance of bite mark identification.[107] In both situations, the Drs. Sobel's and David's testimony would have been barred under state and federal law because it was false, misleading, and inherently unreliable.[108] Without the bite mark

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could have vigorously argued that admitting Drs. Sobel's and David's testimony, in light of these disclosures and admissions, would render Kunco's trial fundamentally unfair.

[107] A party against whom a fact may be noticed must have the opportunity to be heard on the propriety of taking judicial notice. *See* Pa.R.Evid. 201(e); *In re Schlesinger*, 172 A.2d 835 (Pa. 1961) (Disbarment Subcommittee and Court of Common Pleas took judicial notice that one of major purposes of Communist party was overthrow of United States government. It was error to not allow attorney, who was involved in disbarment hearings for his membership in Communist Party, opportunity to provide evidence negating findings of court and Subcommittee). Thus, judicial notice does not prohibit a party against whom a fact is noticed from introducing evidence to disprove the fact.

[108] The bite mark testimony would have been barred under federal due process principles because it would render Kunco's trial fundamentally unfair. Indeed, in light of the NAS Report, bite mark testimony would not be admissible in federal court pursuant to *Daubert v. Merrell Dow Pharmaceutical*, 509 U.S. 579 (1993). In *Daubert*, the Supreme Court articulated the legal framework for distinguishing between reliable science and "science that is junky." *Kuhmo Tire Co. v. Carmichael*, 526 U.S. 137, 159 (1999) (Scalia, J., concurring). This framework requires a district court to consider five (non-exhaustive) factors. First, whether the "theory or technique... can be (and has been tested)." *Daubert v. Merrell Dow Pharmaceutical*, 509 U.S. at 593. Second, "whether the theory or technique has been subjected to peer review and publication." *Id.* Third, whether the technique has a "known or potential rate of error." *Id.* at 594. Fourth, whether there exists any "standards controlling the technique's operation." *Id.* Fifth, whether the technique is "generally accepted" by the scientific community. *Id.* These factors should assist district courts in determining "whether the reasoning or methodology underlying the testimony is... valid and of whether that reasoning or methodology properly can be applied to the facts in issue." *Id.* at 592-593.

Relying on these five factors, bite mark evidence would not be admissible. First, the known error rate for bite mark identification is "substantial." NAS Report, at 1-10. Indeed, the NAS Report commented on the "high percentage of false positive matches of bite marks using controlled comparison studies." *Id*. at 5-36. Second, there are no reliable or valid standards—i.e., there are no standards that bite mark experts can use that will produce accurate results on a consistent basis. As currently practiced, bite mark identification is entirely subjective. Third, there is no research identifying the base rates for the different types of teeth and bite pattern characteristics. With no base rate research, forensic dentists cannot opine as to the likelihood of a coincidental match. This in turn creates a Rule 403 problem. Fed. R. Evid. 403 "permits the exclusion of relevant evidence if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury[.]"*Daubert v. Merrell Dow Pharmaceutical*, 509 U.S. at 595 (citation omitted). If a forensic dentist testifies that a bite pattern "matches" or is "consistent with" a bite mark, this is by all means relevant evidence. However, if the forensic dentist cannot inform the fact finder as to the likelihood of a coincidental match (because the bite mark community has neglected to conduct such research), the probative value of this evidence is greatly outweighed by the danger of unfair prejudice because, as the

evidence, there is a reasonable probability that the outcome of Kunco's trial would have been different.

Second, the undisclosed evidence affected how the jury assessed Drs. Sobel's and David's credibility.[79] As the U.S. Supreme Court noted a half-century ago: "The jury's estimate of the truthfulness and reliability of a given witness may well be determinative of guilt or innocence[.]" *Napue v. Illinois*, 360 U.S. at 269; *Giglio v. United States*, 405 U.S. 150, 154 (1972) ("When the reliability of a given witness may well be determinative of guilt or innocence, nondisclosure of evidence affecting credibility falls within [*Brady's*] general rule."). Undermining the credibility of an expert witness is even more critical because "[t]estimony emanating from the depth and scope of specialized knowledge is very impressive to a jury. The same testimony from another source can have less effect." *Ake v. Oklahoma*, 470 U.S. at 82 n.7 (citation omitted).[109] To accurately gauge a witness's credibility, however, the jury must be provided with the most accurate information regarding a particular witness's competency and capabilities.

NAS Report acknowledged, the terms "match" or "consistent with" are routinely "misunderstood to imply individualization," NAS Report, at 5-25. Individualization, as the NAS Report recognized, is not possible. *Id*. at 5-37 ("The committee received no evidence of an existing scientific basis for identifying an individual to the exclusion of all others.").

[79] *Accord United States v. Scheffer*, 523 U.S. 303, 313 (1998) (citations and internal quotations omitted) ("the fundamental premise of our criminal trial system is that the jury is the lie detector. Determining the weight and credibility of witness testimony, therefore, has long been held to be the part of every case [that] belongs to the jury[.]'"); *Barefoot v. Estelle*, 463 U.S. 880, 902 (1983) ("'[I]t is a fundamental premise of our entire system of criminal jurisprudence that the purpose of the jury is to sort out the true testimony from the false, the important matters from the unimportant matters[.]"); *United States v. Bailey*, 444 U.S. 394, 414-15 (1980) ("The Anglo-Saxon tradition of criminal justice, embodied in the United States Constitution and in federal statutes, makes jurors the judges of the credibility of testimony offered by witnesses. It is for them, generally, and not for appellate courts, to say that a particular witness spoke the truth or fabricated a cock-and-bull story.").

[109] *See also Daubert v. Merrell Dow Pharmaceutical*, 509 U.S. at 595 ("Expert evidence can be both powerful and quite misleading because of the difficulty in evaluating it."); *United States v. Hines*, 55 F. Supp.2d 62, 64 (D. Mass. 1999) ("a certain patina attaches to an expert's testimony unlike any other witness; this is 'science,' a professional's judgment, the jury may think, and give more credence to the testimony than it may deserve.").

The undisclosed evidence would have significantly undermined Drs. Sobel's and David's credibility, which in turn would have substantially weakened the Commonwealth's case against Kunco, and created a reasonable probability of a different outcome. *See California v. Trombetta*, 467 U.S. 479, 485 (1984) ("the prosecution has a constitutional duty to turn over exculpatory evidence that would raise a reasonable doubt about the defendant's guilt."); *United States v. Hill*, 976 F.2d 132, 135 (3rd Cir. 1992) (same).

Third, had the good doctors and the Commonwealth disclosed the aforementioned evidence, trial counsel could have filed a motion for judgment of acquittal after the Commonwealth presented its case-in-chief. A motion for judgment of acquittal "challenges the sufficiency of the evidence to sustain a conviction on a particular charge, and is granted only in cases in which the Commonwealth has failed to carry its burden regarding that charge." *Commonwealth v. Andrulewicz*, 911 A.2d 162, 165 (Pa. Super. 2006) (citations omitted); *accord Commonwealth v. Hutchinson*, 947 A.2d 800, 806 (Pa. Super. 2008). In order to grant a defendant's motion, the trial court (or reviewing court) must determine whether "there is sufficient evidence to enable the fact-finder to find every element of the *crime beyond a reasonable doubt*." *Id.* (emphasis added). This is critical because federal and state constitutional law protects a criminal defendant against conviction "except upon proof beyond a reasonable doubt of every fact necessary to constitute the crime with which he is charged." *In re Winship*, 397 U.S. 358, 364 (1970); *Commonwealth v. Miller*, 208 A.2d 867, 870 (Pa. Super. 1965). Moreover, the Sixth Amendment affords him a right to a jury determination of every element of an offense beyond a reasonable doubt. *See Oregon v. Ice*, 129 S. Ct. 711 (2009); *Cunningham v.*

California, 549 U.S. 270 (2007); *Blakely v. Washington*, 542 U.S. 296 (2004); *Ring v. Arizona*, 536 U.S. 584, 602, 609 (2002); *Apprendi v. New Jersey*, 530 U.S. 466 (2000).

In applying this test, the court "may not weigh the evidence and substitute [its] judgment for the fact-finder." *Commonwealth v. Andrulewicz*, 911 A.2d at 165. Additionally, "the facts and circumstances established by the Commonwealth need not preclude every possibility of innocence. Any doubts regarding a defendant's guilt may be resolved by the fact-finder *unless the evidence is so weak and inconclusive that as a matter of law no probability of fact may be drawn from the combined circumstances*." *Id*. (emphasis added).

As the Superior Court recently re-affirmed, "'the critical inquiry… does not require a court to 'ask itself whether it believes that the evidence at the trial established guilt beyond a reasonable doubt.'" *Commonwealth v. Hutchinson*, 947 A.2d at 806 (quoting *Jackson v. Virginia*, 443 U.S. 307, 318-19 (1979) (citation omitted)). Rather, "the relevant question is whether, after viewing the evidence in the light most favorable to the prosecution, *any* rational trier of fact could have found the essential elements of the crime beyond a reasonable doubt." *Jackson v. Virginia*, 443 U.S. at 319 (emphasis in original).

In light of the NAS Report's findings and conclusions, it is clear that "the [bite mark] evidence is so weak… inconclusive [and unreliable] that as a matter of law no probability of fact may be drawn from the combined circumstances." *Commonwealth v. Hutchinson*, 947 A.2d at 806. Moreover, because Kunco's conviction is premised entirely on the bite mark evidence—as the Commonwealth has repeatedly conceded—no "rational trier of fact could have found the essential elements" of rape, indecent deviate

sexual intercourse, simple assault, indecent assault, aggravated assault, unlawful restraint, and recklessly endangering another person "beyond a reasonable doubt." *Jackson v. Virginia*, 443 U.S. at 319.

Individually and collectively, each of these situations establishes that had the Commonwealth and the good doctors timely disclosed the aforementioned impeachment and exculpatory evidence "there is a reasonable probability… the result of [Kunco's] proceeding[s] would have been different." *Commonwealth v. Burke*, 781 A.2d at 1141 (quotations and citations omitted).

2. AFTER-DISCOVERED EVIDENCE

Subsection (b)(1)(ii) provides that "the facts upon which the claim is predicated were unknown to petitioner and could not have been ascertained by due diligence." 42 Pa.C.S. § 9545(b)(1)(ii). Commonly referred to as the "after-discovered" or "newly-discovered" evidence exception, this exception "does not require a merits analysis of the claim in order for it to qualify as timely and warranting merits review." *Commonwealth v. Lambert*, 884 A.2d 848, 852 (Pa. 2005). Instead, subsection (b)(1)(ii) has two components that must be alleged and proved: (1) "the *facts* upon which the claim was predicated were *unknown*"; and (2) "could not have been ascertained by the exercise of *due diligence*." 42 Pa.C.S. § 9545(b)(1)(ii) (emphasis added); *Commonwealth v. Bennett*, 930 A.2d 1264, 1272 (Pa. 2007). If the "petitioner alleges and proves these two components, then the PCRA court has jurisdiction over the claim under this subsection." *Commonwealth v. Bennett*, 930 A.2d at 1272.

Kunco satisfies these two components because his new state and federal constitutional claims are based entirely on the NAS Report's conclusions and findings.

These conclusions and findings were not made public until February 17, 2009 and neither Kunco nor his attorneys could have learned of these conclusions and findings any sooner. *See Commonwealth v. Fisher*, 870 A.2d at 870 (finding that petitioner could not have accessed the information or conclusions contained in an NAS report on Comparative Bullet Lead Analysis until the NAS published its report in November 2003).

Moreover, in order "to obtain relief under the PCRA on substantive grounds conditioned upon newly-discovered evidence, a defendant must establish, by a preponderance of the evidence, *inter alia*, that such evidence would likely compel a different verdict." *Commonwealth v. Fisher*, 870 A.2d at 871; *accord Commonwealth v. D'Amato*, 856 A.2d 806, 823 (Pa. 2004). Kunco satisfies this requirement because the bite mark evidence represented the only evidence—physical or otherwise—that conclusively linked Kunco to Seaman's assault. The newly-discovered evidence contained in the NAS Report, however, proves that the bite mark evidence was false, misleading, and grossly unreliable. Consequently, the newly discovered evidence would—without question—compel a different verdict.

G. KUNCO IS ENTITLED TO AN EVIDENTIARY HEARING

Kunco is entitled to summary relief on the record-based claims as to which there are no disputed issues of material fact. *See* PA. R. CRIM. P. 702(2). Where the pleadings "raise[] material issues of fact" an evidentiary hearing is required. PA. R. CRIM. P. 908(A)(2); *Commonwealth v. Williams (Roy)*, 732 A.2d 1167, 1189-90 (Pa. 1999) ("Clearly, a material factual controversy exists…; therefore, we hold that the PCRA court erred in dismissing [the] ground for relief without conduct a factual hearing.").

A hearing cannot be denied unless the Court "is certain of the total lack of merit" of the petition. *Commonwealth v. Bennett*, 462 A.2d 772, 773 (Pa. Super. 1983) (citation omitted); *accord Commonwealth v. Korb*, 617 A.2d 715, 716 (Pa. Super. 1992) (remanding for an evidentiary hearing where "[i]t appears that appellant has presented a claim of ineffective assistance of counsel which contains at least arguable merit") (citing *Commonwealth v. Copleand*, 554 A.2d 54, 60-61 (Pa. 1988)). Even in "borderline cases Petitioners are to be given every conceivable legitimate benefit in the disposition of their claims for evidentiary relief." *Commonwealth v. Pulling*, 470 A.2d 170, 173 (Pa. Super. 1983) (remanding for evidentiary hearing) (quoting *Commonwealth v. Strader*, 396 A.2d 697, 702 (Pa. Super. 1978).

The claims pled in the instant Petition—including ineffective assistance of counsel claims—are not frivolous; nor is this a borderline petition. On the contrary, the Petition sets forth material facts that, if uncontested by the Commonwealth or proven at an evidentiary hearing, entitle Kunco to relief. If the Commonwealth contests these material facts, and evidentiary hearing is required. Otherwise, Kunco is entitled to summary relief. *See Townsend v. Sain*, 372 U.S. 293 (1963); *Commonwealth v. Williams (Roy)*, 732 A.2d at 1189-90; *Commonwealth v. Sherard*, 394 A.2d 971 (Pa. 1978); PA. R. CRIM. P. 907.

H. NEW STATE AND FEDERAL CONSTITUTIONAL VIOLATIONS

1. FUNDAMENTALLY UNFAIR TRIAL DUE PROCESS CLAIM

The matters set forth in all other sections of this Petition are repeated and realleged as if set forth entirely herein.

The NAS Report establishes that the bite mark evidence presented during Kunco's trial was false, misleading, unreliable and "so extremely unfair that its admission violates fundamental concepts of justice." *Dowling v. United States*, 493 U.S. 342, 352 (1990); U.S. CONST. AMEND. VI, XIV; PA. CONST., Art. I, §§ 1, 9. The crime in this case was brutal, but, as several courts have noted in the past, "it is in just these circumstances, when the crime itself is likely to inflame the passions of jurors, that courts must be vigilant in ensuring that the demands of due process are met." *McKenzie v. Smith*, 326 F.3d 721, 727-28 (6th Cir. 2003). These principles have their roots in *Chambers v. Mississippi*, 410 U.S. 284, 302-03 (1973), which held that trial errors cannot "defeat the ends of justice" or otherwise deprive a defendant of his right to a fair trial.

In order to make out a due process claim in the context of the present case, Kunco must show that admission of the bite mark evidence "undermine[d] the fundamental fairness of the entire trial." *Keller v. Larkins*, 251 F.3d 408, 413 (3rd Cir. 2001). A claim under the "fundamental fairness" standard may arise when "the probative value of… evidence, though relevant, is greatly outweighed by the prejudice to the accused from its admission." *Bisaccia v. Attorney Gen.*, 623 F.2d 307, 313 (3rd Cir. 1980).[110] Kunco satisfies this standard.

[110] In *Brown v. O'Dea*, 227 F.3d 642 (6th Cir. 2000), the Sixth Circuit articulated the issue another way: "Whether the admission of prejudicial evidence constitutes a denial of fundamental fairness turns upon whether the evidence is 'material in the sense of a crucial, critical highly significant factor.'" *Id*. at 645 (quoting *Leverett v. Spears*, 877 F.2d 921, 925 (11th Cir. 1989)). If the Court is left with "grave doubt" whether the erroneous admission of evidence had "a substantial and injurious effect or influence in determining the jury's verdict" then "the petitioner must win." *Ege v. Yukins*, 380 F. Supp. 2d 852, 870 (E.D. Mich. 2005) (quoting *O'Neal v. McAninch*, 513 U.S. 432, 445 (1995)). Kunco satisfies this threshold as well because the bite mark evidence played a "critical" and "highly significant" factor in regards to the Commonwealth's cases against Kunco. Indeed, the bite mark evidence represented the only evidence that linked Kunco to Seaman's assault.

Kunco's conviction rests exclusively on Drs. Sobel's and David's bite mark testimony. The Commonwealth has repeatedly conceded this point during PCRA and federal habeas proceedings. In essence, then, Kunco's conviction is buttressed solely by the assumptions that allegedly breathe life into bite mark identification. The NAS Report, however, completely undermined these fundamental assumptions: (1) the dental features of biting teeth are not unique; (2) even if the dental features were unique, there is no evidence to support the notion that this uniqueness remains constant throughout a person's lifetime; (3) even if the dental features were unique, there is no evidence to support the notion that these unique features are transferred and recorded every time the person bites into an impressionable object, such as human skin; and (4) forensic dentists cannot accurately link a known bite pattern to an unknown bite mark on a consistent basis. More importantly, the NAS Report stated—repeatedly—that forensic dentists *cannot individualize* a known bite pattern to an unknown bite mark. Furthermore, the NAS Report stated that forensic dentists cannot even opine as to the likelihood of a coincidental match because the bite mark community has neglected to undertake the requisite base rate research.

Individually and collectively, these facts demonstrate that, while the bite mark evidence may have been relevant, its probative value was "greatly outweighed by the prejudice to the accused from its admission." *Bisaccia v. Attorney Gen.*, 623 F.2d at 313. Indeed, if the only evidence supporting a defendant's conviction turns out to be false, unreliable, and invalid, it is axiomatic that his trial was fundamentally unfair and his conviction unjust.

Moreover, as noted *supra*, because there is no base rate research, forensic dentists cannot opine as to the likelihood of a coincidental match. This in turn creates a Rule 403 problem. Pa.R.E. 403 permits the exclusion of relevant evidence "if its probative value is outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence."[111] Unfair prejudice "means a tendency to suggest decision on an improper basis or to divert the jury's attention away from its duty of weighing the evidence impartially." Pa.R.E. 403, cmt.

If a forensic dentist testifies that a bite pattern "matches" or is "consistent with" a bite mark, this is by all means relevant evidence. However, if the forensic dentist cannot inform the fact finder as to the likelihood of a coincidental match (because the bite mark community has neglected to conduct such research), the probative value of this evidence is greatly outweighed by the danger of unfair prejudice because, as the NAS Report acknowledged, the terms "match" or "consistent with" are routinely "misunderstood to imply individualization," NAS Report, at 5-25. Individualization, as the NAS Report recognized, is not possible. *Id*. at 5-37 ("The committee received no evidence of an existing scientific basis for identifying an individual to the exclusion of all others.").

Drs. Sobel and David, however, took this one step further; they both testified that they *could* individualize a known bite pattern to an unknown bite mark. Drs. Sobel's and David's opinions "carried an aura of mathematical precision pointing overwhelmingly to the statistical probability of guilt, when the evidence deserved no such credence." *Ege v.*

[111] Pa.R.E. 403 differs from Fed. R. Evid. 403. The federal rule provides that relevant evidence may be excluded if its probative value is ''substantially outweighed.'' Pa.R.E. 403 eliminates the word ''substantially'' to conform the text of the rule more closely to Pennsylvania law. *See Commonwealth v. Boyle*, 447 A.2d 250 (1982); *Morrison v. Commonwealth, Dept. of Pub. Welfare*, 646 A.2d 565 (1994).

Yukins, 380 F. Supp. 2d at 880, *aff'd Ege v. Yukins*, 485 F.3d 364, 376 (6th Cir. 2007). The prosecutor reinforced this unsubstantiated notion during closing arguments. It strains credulity to think that a jury hearing Drs. Sobel's and David's testimony would not immediately place Kunco at the scene of Seaman's violent assault, if only his teeth, and not those of every other human on the planet, were linked to a bite mark on Seaman's back. As a result, the jury was misled to believe that forensic dentists can individualize bite patterns to bite marks. Individualization, however, was (and still is) not possible. Consequently, Drs. Sobel's and David's testimony was—without a doubt—unfairly prejudicial because the jury's decision to convict Kunco is premised entirely on an "improper" or "invalid" basis.

2. FALSE EVIDENCE CLAIM

The matters set forth in all other sections of this Petition are repeated and realleged as if set forth entirely herein.

The NAS Report establishes that the Commonwealth knowingly presented false evidence in violation of Kunco's state and federal constitutional rights. *See* U.S. CONST. AMENDS. VI, XIV; PA. CONST., Art. I, §§ 1, 9.

The Commonwealth violates a defendant's state and federal due process rights when it: (1) knowingly presents false testimony; or (2) fails to correct the record when it learns that one of its primary witnesses testified falsely. *See Giglio v. United States*, 405 U.S. at 155; *Napue v. Illinois*, 360 U.S. at 271; *Mooney v. Holohan*, 294 U.S. 103 (1935); *Robinson v. Arvonio*, 27 F.3d 877, 883 (3rd Cir. 1994); *United States v. Biberfeld*, 957 F.2d 98, 102 (3d Cir. 1992). Thus, in order to make out a constitutional violation Kunco must show that: (1) Drs. Sobel and David committed perjury; (2) the Commonwealth

knew or should have known of their perjury; (3) their testimony went uncorrected; and (4) there is a reasonable *likelihood* that the false testimony could have affected the jury's verdict. *See Lambert v. Blackwell*, 387 F.3d 210, 242-43 (3rd Cir. 2004). Kunco satisfies these requirements.

a. DRS. SOBEL AND DAVID COMMITTED PERJURY

A "person is guilty of perjury… if in any official proceeding he makes a false statement under oath or equivalent affirmation, or swears or affirms the truth of a statement previously made, when the statement is material and he does not believe it to be true." 18 Pa.C.S. § 4902(a). Falsification "is material, regardless of the admissibility of the statement under rules of evidence, if it could have affected the course or outcome of the proceeding." 18 Pa.C.S. § 4902(b).

Drs. Sobel and David committed perjury. First, they testified—under oath—at an official proceeding—i.e., Kunco's trial. Second, they made several statements that they knew were untrue when they made them. Third, and most importantly, their false statements "could have affected the course or outcome of the proceeding." 18 Pa.C.S. § 4902(b); *Lambert v. Blackwell*, 387 F.3d at 242-43.

Drs. Sobel and David both testified that they could individualize a known bite pattern to an unknown bite mark. The NAS Report establishes that this testimony is false and that Drs. Sobel and David should have known that this testimony was false. Indeed, if bite mark identification's scientific foundation in 2009 prevents it from individualizing bite patterns to bite marks, then individuality could not have been achieved twenty years earlier in 1991. Anyone in the forensic science or bite mark communities would (and should) have known this fact.

Drs. Sobel and David also testified that bite mark identification was a reliable and accurate method of identification. Indeed, Dr. Sobel testified that, outside of fingerprinting, bite mark identification was the most accurate forensic identification technique. The NAS Report, however, proves that such testimony is false. As the NAS Report repeatedly noted, bite mark identification's error rate is "substantial" and has been for many years.

b. THE COMMONWEALTH KNEW OF SHOULD HAVE KNOWN THAT DRS. SOBEL'S AND DAVID'S TESTIMONY WAS FALSE

Drs. Sobel and David served as agents for the Commonwealth during pre-trial proceedings and Kunco's trial. Consequently, given the intimate relationship between the Commonwealth and Drs. Sobel and David, the Commonwealth should have known that their testimony was false–if it did not already know.

c. TESTIMONY WENT UNCORRECTED

The Commonwealth has not corrected Drs. Sobel's and David's false testimony.

d. THE REASONABLE LIKELIHOOD STANDARD

The materiality analysis proceeds differently for *Brady* and *Napue* claims. Whereas a *Brady* violation is material when "there is a reasonable probability that ... the result of the proceeding would have been different," *United States v. Bagley*, 473 U.S. at 682, a *Napue* violation requires that the conviction be set aside whenever there is "any reasonable likelihood" that the false testimony could "have affected the judgment of the jury." *Napue v. Illinois*, 360 U.S. at 271; *accord United States v. Bagley*, 473 U.S. at 679 n.9; *Giglio v. United States*, 405 U.S. at 154.

Drs. Sobel and David, as mentioned, played an indispensable role in the Commonwealth's case. Indeed, as Drs. Sobel and David wrote in their 1994 *Journal of Forensic Science* article, their testimony "was *essential* to establishing an evidentiary link between the victim and [Kunco]. Without this critical piece of evidence, it is unlikely that there would have been sufficient evidence to support a conviction for this vicious crime."[112] Consequently, there is a reasonable likelihood that their testimony affected the jury's verdict.

3. *BRADY* CLAIM

The matters set forth in all other sections of this Petition are repeated and realleged as if set forth entirely herein.

The NAS Report proves that Drs. Sobel and David (and thus the Commonwealth) failed to disclose impeachment and exculpatory evidence regarding the unreliability of bite mark evidence. The failure to disclose this information undermines confidence in Kunco's trial. *See* U.S. CONST. AMENDS. VI, XIV; *Kyles v. Whitley*, 514 U.S. at 437; PA. CONST., Art. I, §§ 1, 9; *Commonwealth v. Gibson*, 951 A.2d 1110, 1127 (Pa. 2008); *Commonwealth v. Strong*, 761 A.2d 1167 (Pa. 2000).

Kunco incorporates herein the facts and argument presented *supra*, § VI-F.1, pp. 58-67.

4. MEANINGFUL DEFENSE CLAIM

The matters set forth in all other sections of this Petition are repeated and realleged as if set forth entirely herein.

[112] Thomas J. David & Michael N. Sobel, *Recapturing a Five-Month-Old Bite Mark by Means of Reflective Ultraviolet Photography*, 39 J. FORENSIC SCI. 1560, 1562, 1567 (1994) (emphasis added).

Kunco's meaningful defense claim is an off-shoot of his *Brady* claim. *See* U.S. CONST. AMENDS. VI, XIV; PA. CONST., Art. I, §§ 1, 9. The failure to disclose the fact that bite mark identification was (and still is) scientifically bankrupt and that forensic dentists can not individualize a known bite pattern to an unknown bite mark deprived Kunco's trial counsel from presenting a "complete defense."

As the U.S. Supreme Court has repeatedly noted, "Whether rooted directly in the Due Process Clause of the Fourteenth Amendment or in the Compulsory Process or Confrontation clauses of the Sixth Amendment, the Constitution guarantees criminal defendants 'a meaningful opportunity to present a complete defense.'" *Crane v. Kentucky*, 476 U.S. 683, 690 (1986) (quoting *California v. Trombetta*, 467 U.S. at 485); *Holmes v. South Carolina*, 547 U.S. 319, 324 (2006). The "right of an accused in a criminal trial to due process is, in essence, the right to a fair opportunity to defend against the State's accusations." *Chambers v. Mississippi*, 410 U.S. at 294. Moreover, under *Brady*, materiality exists when the withheld evidence had "any adverse effect" upon the defendant's ability to prepare for trial or present a defense. *United States v. Bagley*, 473 U.S. at 683 ("the reviewing court may consider directly any adverse effect that the prosecution's failure to respond might have had on the preparation or presentation of the defendant's case."); *accord United States v. Perdomo*, 929 F.2d 967, 972 (3rd Cir. 1991) ("the *Bagley* inquiry requires consideration of the totality of the circumstances, including possible effects of non-disclosure on the defense's trial preparation.").

As mentioned, had this information been timely disclosed, trial counsel could have used it to bar Drs. Sobel's and David's testimony and to undermine their credibility. Simply put, the failure to timely disclose the aforementioned information deprived Kunco

of the basic right to have the prosecutor's case encounter and "survive the crucible of meaningful adversarial testing." *United States v. Cronic*, 466 U.S. 648, 656 (1984).

5. PROSECUTORIAL MISCONDUCT CLAIM

The matters set forth in all other sections of this Petition are repeated and realleged as if set forth entirely herein.

The NAS Report establishes that the Commonwealth knew or should have known that Drs. Sobel's and David's testimony was false, misleading, and grossly unreliable. Despite this knowledge or awareness, the Commonwealth argued that the bite mark testimony was reliable and highly incriminating. During closing arguments, the prosecutor hammered home the bite mark evidence, arguing that it proved Kunco's guilt beyond a reasonable doubt:

> [T]here's no way, no way on this earth, for Mr. Kunco to explain how his tooth marks got on Donna Seaman's shoulder unless you accept the fact that he's the one who attacked and brutalized Mrs. Seaman. That's the only explanation, ladies and gentlemen. That's why the evidence is better than fingerprints or hair samples ... [T]he bite mark on Danna Seaman's shoulder was as good as a fingerprint. And I submit to you it was that, ladies and gentlemen, for all intents and purposes. Ladies and gentlemen, I'd submit to you that John Kunco should have just signed his name on Donna Seaman's back, because the bite mark on Donna Seaman's shoulder belongs to John Kunco.[113]

The Commonwealth's willingness to endorse and present evidence that it knew or should have known was false, misleading, and inherently unreliable "so infected [Kunco's] trial with unfairness as to make the resulting conviction a denial of due process." *Darden v. Wainwright*, 477 U.S. 168, 181 (1986) (quoting *Donnelly v. DeChristoforo*, 416 U.S. 637, 643 (1974)); U.S. CONST. AMENDS. VI, XIV; PA. CONST., Art. I, §§ 1, 9, 13.

[113] NT at 453, 456.

6. SUFFICIENCY OF THE EVIDENCE CLAIM

The matters set forth in all other sections of this Petition are repeated and realleged as if set forth entirely herein.

In light of the NAS Report's findings and conclusions, it is clear that there is insufficient evidence that proves each and every element of rape, indecent deviate sexual intercourse, simple assault, indecent assault, aggravated assault, unlawful restraint, and recklessly endangering another person beyond a reasonable doubt. *See* U.S. CONST. AMENDS. VI, XIV; PA. CONST., Art. I, §§ 1, 9, 13; *In re Winship*, 397 U.S. 358, 364 (1970); *Commonwealth v. Miller*, 208 A.2d 867, 870 (Pa. Super. 1965).

Kunco incorporates § VI-F.1, pp. 65-67, hereto as if fully pled.

7. REASONABLE DOUBT CLAIM

The matters set forth in all other sections of this Petition are repeated and realleged as if set forth entirely herein.

According to the NAS Report, Kunco's conviction is premised on invalid and false bite mark evidence. Kunco's conviction therefore violates his state and federal constitutional rights to an impartial jury and to a jury verdict based solely upon properly admitted evidence and argument that proves every element of an offense beyond a reasonable doubt. *See* U.S. CONST. AMENDS. VI, XIV; PA. CONST., Art. I, §§ 1, 9; *Apprendi v. New Jersey*, 530 U.S. 466, 477 (2000)*; United States* v. *Gaudin*, 515 U.S. 506, 510 (1995); *Sullivan* v. *Louisiana*, 508 U.S. 275, 278 (1993); *In re Winship*, 397 U.S. 358, 364 (1970).

8. ACTUAL INNOCENCE CLAIM

The matters set forth in all other sections of this Petition are repeated and realleged as if set forth entirely herein.

The NAS Report's conclusions and findings establish that Kunco is actually innocent of the crime for which he stands convicted. *See* U.S. CONST. AMENDS. VI, XIII, XIV; PA. CONST., Art. I, §§ 1, 9. As the Pennsylvania Supreme Court recently noted, "[c]olorable claims of actual innocence hold a favored place in the law." *Commonwealth v. Williams*, 594 Pa. 366, 388 (Pa. 2007); *accord Schulp v. Delo*, 513 U.S. 298, 325 (1995) ("concern about the injustice that results from the conviction of an innocent person has long been at the core of our criminal justice system."). Although 42 Pa. C.S. § 9543 does not use the term "actual innocence" in enumerating cognizable claims, the Act specifically states that it is intended to "provide[ ] for an action by which persons convicted of crimes they did not commit… may obtain collateral relief." 42 Pa. C.S. § 9542; *accord Commonwealth v. Abu-Jamal*, 833 A.2d 719, 728 (Pa. 2003). Thus, Kunco's actual innocence claim is cognizable under the Act.

The U.S. Supreme Court's decision in *Schulp v. Delo*, 513 U.S. 298 (1995), emphasized that a determination of actual innocence must be made "in light of *all* the evidence." *Id*. at 328 (emphasis added); *House v. Bell*, 547 U.S. at 538 ("*Schlup* makes plain that the habeas court must consider 'all the evidence,' old and new, incriminating and exculpatory, without regard to whether it would necessarily be admitted under 'rules of admissibility that would govern at trial.'") (citation omitted). "[A]ll the evidence," was intended to include categories of evidence not normally considered by judges, including "evidence tenably claimed to have been wrongly excluded or to have become available only after the trial." *Id.* "[A]ll the evidence" also included all forms of

evidence, including all reliable evidence "whether it be exculpatory *scientific evidence*, trustworthy eyewitness accounts, or critical physical evidence." *Id*. at 324 (emphasis added). Moreover, the Court acknowledged that "newly presented evidence" of actual innocence "may indeed call into question the credibility of the witnesses presented at trial," thus requiring that the post-conviction court "make some credibility assessments." *Id*. at 330.

Using *Schlup* and *House* as guides, the Court must consider all the newly discovered "exculpatory" evidence presented in the NAS Report. In light of this new exculpatory evidence, "it is more likely than not that no reasonable juror would have found [Kunco] guilty beyond a reasonable doubt." *Schlup v. Delo*, 513 U.S. at 327.

9. INEFFECTIVE ASSISTANCE OF COUNSEL CLAIM

The matters set forth in all other sections of this Petition are repeated and realleged as if set forth entirely herein.

Should this Court find that the NAS Report's findings and conclusions do not constitute newly discovered evidence and that trial, appellate, and post-conviction counsel could have obtained all or part of the information contained in the NAS Report, then all of Kunco's former attorneys rendered ineffective assistance of counsel for failing to timely and diligently pursue, develop, obtain, and present this information to the trier of fact or the Court. *See* U.S. CONST. AMENDS. VI, XIV; *Strickland v. Washington*, 466 U.S. 668, 686 (1984); PA. CONST., Art. I, §§ 1, 9; *Commonwealth v. Pierce*, 786 A.2d 203, 213 (2001); *Commonwealth v. Basemore*, 744 A.2d 717, 738 n. 23 (Pa. 2000).[114]

[114] Even if the Court holds that the evidence presented in the NAS Report is not newly discovered evidence, it cannot reasonably hold that this evidence still does not change the outcome of Kunco's conviction. Regardless of whether the evidence is newly-discovered or not, the plain fact is that Drs. Sobel's and David's testimony is false, misleading, and inherently unreliable

To prevail on an ineffective assistance of counsel claim, petitioner must demonstrate that counsel's performance was deficient and that the deficient performance prejudiced his case. *See Strickland v. Washington*, 466 U.S. at 687; *Williams v. Taylor*, 529 U.S. 362 (2000); *Wiggins v. Smith*, 539 U.S. 510 (2003); *Rompilla v. Beard*, 545 U.S. 374 (2005). The deficient-performance prong "requires showing that counsel made errors so serious that counsel was not functioning as the 'counsel' guaranteed the defendant by the Sixth Amendment." *Strickland v. Washington*, 466 U.S. at 687. The prejudice prong requires showing "a reasonable probability that, but for counsel's unprofessional errors, the result of the proceeding would have been different. A reasonable probability is a probability sufficient to undermine confidence in the outcome." *Id*. at 694.[115]

a. DEFICIENT PERFORMANCE

(1). TRIAL COUNSEL ERRED BY NOT FILING A MOTION TO EXCLUDE THE BITE MARK EVIDENCE IN LIGHT OF DRS. SOBEL'S AND DAVID'S PRE-TRIAL REPORTS

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according to this evidence. Thus, Kunco's conviction is premised entirely on false, misleading, and unreliable evidence. Furthermore, this evidence establishes his actual innocence. It is for this very reason that Kunco specifically seeks substantive review of his claims under Article I, § 14 of the Pennsylvania Constitution, which guarantees his state constitutional right to habeas corpus, if the Court finds that the evidence contained in the NAS Report is not newly discovered evidence or that counsel could have obtained this information prior to February 17, 2009. *See Commonwealth v. Peterkin*, 722 A.2d at 640 ("the writ [of habeas corpus] continues to exist… in cases in which there is no remedy under the PCRA."). The fact that this evidence establishes Kunco's innocence provides more than a sufficient reason to substantively review his claims, regardless of whether the Court characterizes the NAS Report's findings and conclusions as "newly-discovered."

[115] Under Pennsylvania law, Kunco must establish that: (1) the underlying claim is of arguable merit; (2) counsel's performance lacked a reasonable basis; and (3) counsel's ineffectiveness prejudiced him. *See Commonwealth v. Pierce*, 786 A.2d at 213. Trial counsel's strategy will be considered unreasonable if Kunco establishes "that an alternative not chosen *offered a potential* for success substantially greater than the course actually pursued." *Commonwealth v. Howard*, 719 A.2d 233, 237 (1998) (emphasis added).

The Commonwealth disclosed Drs. Sobel's and David's July 8, 1991 reports to trial counsel prior to trial. In his pre-trial report, Dr. Sobel concluded: "Within a reasonable medical certainty, the bite mark on the back shoulder of Donna Seaman was made by the teeth of John Kunco."[116] Likewise, in his pre-trial report, Dr. David concluded: "After careful consideration it is my opinion… to a reasonable degree of dental certainty that the bite mark found on the victim was produced by the teeth of John Kunco."[117]

Trial counsel did not move to exclude the bite mark evidence. However, if the Court finds that the information in the NAS Report was available prior to trial, then trial counsel should have moved to exclude Drs. Sobel's and David's bite mark testimony. Indeed, if the information in the NAS Report existed prior to trial, trial counsel should have known that forensic dentists cannot individualize a known bite pattern to an unknown bite mark. Consequently, the failure to move pre-trial to exclude Drs. Sobel's and David's bite mark testimony was objectively unreasonable. The unreasonableness of trial counsel's actions (or inactions) is even more glaring when compared to the Commonwealth's other evidence and trial counsel's theory of defense.

In regards to the former, there was no other physical evidence linking Kunco to Seaman's assault. The only other circumstantial evidence introduced by the Commonwealth was Seaman's very questionable and suspicious voice identification. With respect to the later, trial counsel intended to present an alibi defense. Individually and collectively, these two facts make it difficult to conceive of a reason as to why trial counsel did not move to exclude the bite mark evidence. Considering that the bite mark

[116] Ex. 3
[117] Ex. 4.

evidence was the only physical evidence connecting Kunco to Seaman's assault, challenging its admissibility would have been a sound decision with no adverse consequences. *See Ege v. Yukins*, 380 F. Supp. 2d at 875-76.

(2). TRIAL COUNSEL ERRED BY NOT RETAINING AN INDEPENDENT FORENSIC DENTIST

Trial counsel received Drs. Sobel's and David's July 8, 1991 reports on July 9, 1991—shortly before trial was scheduled to begin. Given the short notice, trial counsel had the option of requesting a continuance in order to consult with and retain an independent bite mark expert to counter the Commonwealth's bite mark experts and to inform the trier of fact that forensic dentists cannot individualize a known bite pattern to an unknown bite mark.[118] Trial counsel chose not to request a continuance and thus did not consult with or retain an independent bite mark expert.

Analyzed under the U.S. Supreme Court's ineffectiveness framework, the issue is whether trial counsel's action not to consult with and retain a bite mark expert constitutes a strategic decision; if so, his decision is "virtually unchallengeable." *Strickland v. Washington*, 466 U.S. at 690; *accord Wiggins v. Smith*, 539 U.S. at 521; *Darden v. Wainwright*, 477 U.S. 168, 186 (1986). However, to qualify as a strategic decision, trial counsel had to reasonably investigate the physical evidence, the circumstances of the case, and whether retaining a bite mark expert had the potential to advance Kunco's innocence claim. *E.g., Stickland v. Washington*, 466 U.S. at 691 ("counsel has a duty to make reasonable investigations or to make a reasonable decision that makes particular investigations unnecessary."); *Mayfield v. Woodford*, 270 F.3d 915, 927 (9th Cir. 2001) ("Judicial deference to counsel is predicated on counsel's performance of sufficient

[118] Again, this sub-section of the claim is premised on the fact that the information in the NAS Report is not newly discovered evidence and was available prior to trial.

investigation and preparation to make reasonably informed, reasonably sound judgments."); *Commonwealth v. Hughes*, 865 A.2d 761, 813 (Pa. 2004); *Commonwealth v. Basemore*, 744 A.2d at 735. Accordingly, the issue is not whether trial counsel should have consulted with and retained a bite mark expert; instead, the issue is whether the investigation supporting trial counsel's decision not to consult with and retain a bite mark expert was itself reasonable. *Cf. Wiggins v. Smith*, 539 U.S. at 523.

Trial counsel's reason for not consulting with and retaining a bite mark expert is that *Kunco wanted* to proceed to trial instead of requesting a continuance.[119] Trial counsel's decision to abdicate his decision-making role for a non-fundamental trial decision is objectively unreasonable for various reasons.

First, no reasonable trial attorney would relinquish his decision-making authority given the facts of Kunco's case. Drs. Sobel's and David's bite mark testimony represented the only physical evidence linking Kunco to Seaman's assault. As mentioned, bite mark evidence by its very nature is more inherently prejudicial than other forensic identification evidence such as fingerprints. *See Ege v. Yukins*, 485 F.3d 364, 376 (6th Cir. 2007) ("Bite mark evidence may by its very nature be overly prejudicial"). Thus, the Commonwealth's entire case hinged on whether the bite mark evidence would be admissible, and if so, whether the jury would find Drs. Sobel's and David's testimony credible. As a result, trial counsel's singular focus should have been on uncovering as much information as possible in order to undermine the Commonwealth's bite mark evidence. Viewed through this lens, a reasonable trial attorney would have unilaterally decided to request a continuance so he could adequately investigate the bite mark issue and to consult with and retain an independent bite mark expert. Consequently, because

[119] NT at 5-22.

trial counsel conducted absolutely no investigation before he abdicated his decision-making role to his client, his decision not to consult with and retain a bite mark expert cannot be deemed "strategic" and is objectively unreasonable.

Second, as mentioned, trial counsel has the ultimate authority in deciding whether to retain an expert or to request a continuance. *See* WAYNE R. LAFAVE ET AL., CRIMINAL PROCEDURE 602 (4th ed.2004) (noting that the U.S. Supreme Court and lower federal courts have routinely held that "counsel has the ultimate authority in deciding whether or not to advance the following rights: . . . calling a possible witness (other than defendant) to testify; . . . [and] whether to seek a continuance and thereby relinquish a statutory right to trial within a specified period of days"); ABA STANDARDS FOR CRIMINAL JUSTICE 4-5.2(b).

While it is axiomatic under the Sixth Amendment that an "attorney undoubtedly has a duty to *consult with* the client regarding 'important decisions,' including questions of overarching defense strategy," *Florida v. Nixon*, 543 U.S. 175, 187 (2004) (emphasis added); *Strickland v. Washington*, 466 U.S. at 688 (counsel has duty "to consult with the defendant on important decisions and to keep the defendant informed of important developments in the course of the prosecution."); *Morris v. Slappy*, 461 U.S. 1, 21 (1983) (Brennan, J., concurring in judgment) ("Counsel is provided to assist the defendant in presenting his defense, but in order to do so effectively the attorney must work closely with the defendant in formulating defense strategy."), the duty to consult does not morph into a fundamental right on the defendant's part to dictate how his trial counsel should and must litigate the case.

To the contrary, trial counsel need only obtain a defendant's "informed and publicly acknowledged consent," *Taylor v. Illinois*, 484 U.S. 400, 417-18 (1988), for a limited number of "*fundamental decisions*" such as "whether to plead guilty, waive a jury, testify in his or her own behalf, or take an appeal." *Jones v. Barnes*, 463 U.S. 745, 751 (1983) (emphasis added); *Wainwright v. Sykes*, 433 U.S. 72, 93, n. 1 (1977) (Burger, C.J., concurring); *accord* ABA STANDARDS FOR CRIMINAL JUSTICE 4-5.2(a). The decisions to request a continuance and to consult with, retain, and present a bite mark expert at trial are not "fundamental decisions" that the client ultimately gets to make. Instead, these decisions, as mentioned, can be unilaterally made by trial counsel even if his client disagrees with his ultimate decision. As a result, due to the aforementioned circumstances surrounding Kunco's case, it was objectively unreasonable for trial counsel to abdicate his decision-marking authority to Kunco.

(3). TRIAL COUNSEL ERRED BY NOT OBJECTING TO DRS. SOBEL'S AND DAVID'S TESTIMONY

Drs. Sobel and David both testified that Kunco—and only he—could have inflicted the bite mark on Seaman's shoulder. Trial counsel did not object to Dr. Sobel's opinion or Dr. David's opinion. However, if the Court finds that the information in the NAS Report was available prior to trial, then trial counsel should have contemporaneously objected to Drs. Sobel's and David's testimony because the falsity of their testimony "should have been obvious and its admissibility readily assailable." *Ege v. Yukins*, 380 F. Supp. 2d at 876. Indeed, had trial counsel conducted an adequate investigation, it would have learned that forensic dentists cannot individualize a known bite pattern to an unknown bite mark. Kunco has already explained the unreasonableness of trial counsel's actions (or inaction) given the facts of Kunco's case and trial counsel's

theory of defense. *See supra*. Even if trial counsel could not have anticipated the prosecutor's questions soliciting the unsupported individualization testimony (which is highly dubious considering trial counsel had Drs. Sobel's and David's July 8, 1991 reports), "one might expect that lodging a contemporaneous objection and moving to strike the evidence, or perhaps for a mistrial, would be standard operating procedure for a competent defense lawyer." *Id*. at 876.

Accordingly, the basis for objecting to this damaging yet unsubstantiated opinion evidence should have been obvious to trial counsel, and the failure to lodge the objection was substandard performance under prevailing professional norms.

(4) DIRECT APPEAL COUNSEL FAILED TO RAISE MERITORIOUS CONSTITUTIONAL CLAIMS ON DIRECT APPEAL

Kunco's direct appeal counsel acted objectively unreasonable by not raising the aforementioned meritorious ineffective assistance of counsel claims. *See Roe v. Flores-Ortega*, 528 U.S. 420 (2000) (applying *Strickland* standard to consideration of appellate counsel's ineffectiveness); *United States v. Mannino*, 212 F.3d 835 (3d Cir. 2000).[120]

The adequacy of counsel's performance is "measured against an 'objective standard of reasonableness' under prevailing professional norms." *Rompilla v. Beard*, 545 U.S. at 380 (citing *Strickland v. Washington*, 466 U.S. at 688 and *Wiggins v. Smith*, 539 U.S. at 521). The courts "long have referred" to national standards such as the American Bar Association Standards for Criminal Justice "as 'guides to determining what is reasonable.'" *Wiggins v. Smith*, 539 U.S. at 524 (quoting *Strickland v. Washington*, 466 U.S. at 688); *see also Commonwealth v. Hughes*, 865 A.2d 761, 813-

[120] Again, this sub-section of the claim is premised on the fact that the information in the NAS Report is not newly discovered evidence and was available prior to trial.

814 (Pa. 2004). These norms unquestionably apply to counsel's performance on direct appeal in this case. *E.g., Rompilla v. Beard*, 545 U.S. at 387 (applying ABA Standards to counsel's performance in November 1988 trial); *Wiggins v. Smith*, 539 U.S. at 522-23 (applying ABA Standards and Maryland local norms to counsel's performance at trial in 1989); *Williams v. Taylor*, 529 U.S. at 396 (applying ABA Standards to counsel's performance in 1986 trial); *Commonwealth v. Hughes*, 865 A.2d 761, 814 (Pa. 2004) (applying ABA Standards applicable to counsel's performance in 1981 trial).

The ABA Guidelines "in circulation at the time of [Kunco's direct appeal] describe[] the obligation in terms no one could misunderstand in the circumstances of a case like this one," *Rompilla v. Beard*, 545 U.S. at 387: "Defense counsel should take whatever steps are necessary to protect the defendant's rights of appeal." ABA STANDARDS FOR CRIMINAL JUSTICE 4-8.2(b). Similarly, counsel "should consider all issues that might affect the validity of the judgment of conviction and sentence[.]" *Id*. at 4-8.3(b). Consequently, appellate counsel can have no reasonable basis for failing to present a meritorious issue on direct appeal. *See Commonwealth v. Townsell*, 379 A.2d 98, 101 (Pa. 1977); *Commonwealth v. Yocham*, 397 A.2d 766, 768 (Pa. 1979); *Commonwealth v. Jones*, 815 A.2d 598, 619 (Pa. 2002) (Newman, J., concurring).

Accordingly, where, as in this case, there is a "reasonable probability that the neglected claim[s] would have succeeded on appeal, [] counsel's failure to raise the claim [falls] outside the range of reasonably competent assistance." *Claudio v. Scully*, 982 F.2d 798, 799 (2d Cir. 1992); *Jackson v. Leonardo*, 162 F.3d 81 (2d Cir. 1998) (appellate counsel's failure to raise "sure winner" constituted ineffective assistance; "In the instance case, we believe the appellate counsel's failure to raise a well-established,

straightforward, and obvious… [claim]… constitutes ineffective performance."); *Murphy v. Puckett*, 893 F.2d 94 (5th Cir. 1990) (counsel's failure to raise valid defense at trial and on direct appeal constituted ineffective assistance).

Kunco has also demonstrated that appellate counsel was ineffective under Pennsylvania law because, as the above discussion demonstrates, "there is arguable merit to the claim that [trial] counsel's performance was substandard or deficient." *Commonwealth v. Perry*, 644 A.2d 705, 708-09 (Pa. 1994).

b. PREJUDICE

Under *Strickland*, Kunco must show a "reasonable probability" that, but for his trial counsel's unprofessional errors, a different result would have likely occurred. *Strickland v. Washington*, 466 U.S. at 694. Kunco does not have to establish that trial counsel's deficient conduct "more likely than not altered the outcome in the case." *Id*. at 693. The "reasonable probability," rather, is "a probability sufficient to undermine confidence in the outcome." *Id*. at 694. The question, in other words, "is whether counsel's errors were serious enough to deprive the petitioner of a proceeding the result of which was 'reliable'–'whether counsel's conduct so undermined the proper functioning of the adversarial system that the trial… cannot be relied on as having produced a just result.'" *Glenn v. Tate*, 71 F.3d 1204, 1210-11 (6th Cir. 1995) (quoting *Strickland v. Washington*, 466 U.S. at 686). Finally, prejudice is judged cumulatively and not on an error-by-error basis. *Id*.

Kunco satisfies the prejudice inquiry because the bite mark evidence represented the only physical evidence linking him to Seaman's assault. Consequently, had trial counsel requested a continuance, adequately investigated the bite mark evidence, and

consulted with, retained, and presented an independent bite mark expert at trial, there is a reasonable probability that the bite mark evidence would have been excluded or, if the trial judge admitted the evidence, that the jury would have given little if any weight to Drs. Sobel's and David's false, misleading, and unreliable testimony. This, in turn, would create a reasonable probability of a different outcome.

10. FRAUD AGAINST THE COURT CLAIM

The matters set forth in all other sections of this Petition are repeated and realleged as if set forth entirely herein.

The NAS Report establishes that the Commonwealth obtained Kunco's conviction by presenting false, misleading, and grossly unreliable bite mark evidence. More importantly, Drs. Sobel and David and the Commonwealth knew or should have known that the bite mark evidence was false, misleading, and grossly unreliable. In essences, then, the Commonwealth secured Kunco's conviction by perpetrating a fraud against the Court. As the Superior Court recently emphasized, "The courts simply will not countenance fraud, and when a decision is obtained through its use, the court retains the inherent power to rescind that decision." *Commonwealth v. Harper,* 890 A.2d 1078, 1082 (Pa. Super. 2006) (PCRA court had "the inherent power" to reverse its decision granting petitioner a new trial when it learned that petitioner obtained the new trial through blackmail and perjury). Consequently, the Court not only has the duty to rectify the fraud perpetrated by the Commonwealth, it has the "inherent power" to rescind the jury's decision to convict and to grant Kunco a new trial. *See* U.S. CONST. AMENDS. VI, XIV; PA. CONST., Art. I, §§ 1, 9.

11. CUMULATIVE ERROR CLAIM

The matters set forth in all other sections of this Petition are repeated and realleged as if set forth entirely herein.

Courts have long recognized that constitutional claims of error are to be considered cumulatively as well as individually, and that cumulative error or prejudice may provide a basis for relief whether or not the effect of individual errors warrant relief. *See Kyles v. Whitley*, 514 U.S. at 437-38; *Taylor v. Kentucky*, 436 U.S. 478, 487-88 & n.15 (1978) (cumulative effect of potentially damaging instructions and prosecution argument violated due process guarantee of fundamental fairness, necessitating relief); *Donnelly v. DeChristoforo*, 416 U.S. 637, 639 (1974) (considering totality of prosecutorial misconduct in context of entire trial to decide if misconduct was sufficiently prejudicial to violate defendant's due process rights); *Berryman v. Morton*, 100 F.3d 1089 (3d Cir. 1996) (the cumulative effect of each instance of counsel's deficient performance was sufficiently prejudicial to require relief); *Lesko v. Lehman*, 925 F.2d 1527, 1541 (3d Cir. 1991) (cumulative prejudicial effect of prosecutor's penalty phase remarks entitled petitioner to relief, even if individually the remarks may not have been sufficiently prejudicial to warrant relief).

A cumulative prejudicial claim is a claim that a petitioner's due process right to a fair trial has been violated by a series of constitutional errors that, individually, might be considered harmless. *See Thomas v. Hubbard*, 273 F.3d 1164, 1179-80 (9th Cir. 2001). Such a claim requires the Court to determine whether the errors are harmless together, rather than individually. A cumulative error analysis is, therefore, a particular kind of harmless error analysis. *See Cargle v. Mullin*, 317 F.3d 1196, 1220 (10th Cir. 2003). In *Parks v. Mullin*, 327 F.3d 1001 (10th Cir. 2003), the Court explained:

> A cumulative-error analysis merely aggregates all the errors that individually have been found to be harmless, and therefore not reversible, and it analyzes whether their cumulative effect on the outcome of the trial is such that collectively they can no longer be determined to be harmless. Unless an aggregate harmless determination can be made, collective error will mandate reversal, just as surely as will individual error that cannot be considered harmless.

Id. at 1218. Consequently, the standard to be applied in determining whether due process has been violated by a collection of constitutional errors is the standard for harmless constitutional error set forth in *Bretch v. Abrahamson*, 507 U.S. 619, 632 n.7 (1993)—the constellation of errors must have a "substantial and injurious effect or influence in determining the jury's verdict." *See also Thomas v. Hubbard*, 273 F.3d at 1179-80; *Cargle v. Mullin*, 317 F.3d at 1220; *McKinney v. Rees*, 993 F.2d 1378, 1385-86 (9th Cir. 1993) (describing the similarity between the due process and *Brecht* standards).

In determining whether the combination of independently harmless errors had a collectively "substantial and injurious effect or influence in determining the jury's verdict," the question is not whether the defendant would have been convicted if the errors had not occurred:

> *Kotteakos [v. United States*, 328 U.S. 750 (1946)] is full of warnings to avoid that result. It requires a reviewing court to decide that "the error did not influence the jury" and that "the judgment was not substantially swayed by the error." In a passage that should be kept in mind by all courts that review trial transcripts, Justice Rutledge wrote that the question is not
>
> > "were… [the jurors] right in their judgment, regardless of the error or its effect upon the verdict. It is rather what effect the error had or reasonably may be taken to have had upon the jury's decision. The crucial thing is the impact of the thing done wrong on the minds of the other men, not on one's own, in the total setting."

507 U.S. at 642-43 (Stevens, J., concurring) (controlling opinion); *accord Yohn v. Love*, 76 F.3d 508, 523 (3d Cir. 1996).

Thus, Kunco need not prove any single error (let alone a series of errors) prejudicial. Instead, a court's doubt concerning the harmlessness of any such error (or errors) must be resolved in favor of the petitioner. *See Bretch v. Abrahamson*, 507 U.S. at 640-41 (Steven, J., concurring) (the harmless error standard "places the burden on prosecutors to explain why those errors were harmless."); *O'Neal v. McAnnich*, 513 U.S. 432, 437 (1995).

Under *Brady* and *Strickland*, materiality or prejudice is cumulatively defined. If the court finds cumulative prejudice, it need not analyze the individual prejudicial effect of each deficiency or the materiality of each item withheld by the prosecution. *See Mak v. Blodgett*, 970 F.2d 614, 622 (9th Cir. 1992). Furthermore, if the court finds itself in equipoise as to the effect of these cumulative errors, such that it "merely ha[s] 'grave doubts' as to the existence of prejudice," relief must be granted. *Glenn v. Tate*, 71 F.3d at 1211 (quoting *O'Neal v. McAnnich*, 513 U.S. 432, 437 (1995).

In analyzing the prejudicial effect of cumulative errors, the reviewing Court must, of course, examine the entire record. *See Bretch v. Abrahamson*, 507 U.S. at 638 (Rehnquist, C.J.) (holding that the reviewing court must make its prejudice determination "in light of the record as a whole."); *id*. at 642 ("the purpose of reviewing the entire record is, or course, to consider all the ways that error can affect the course of the trial.") (Stevens, J.); *Anderson v. Sternes*, 243 F.3d 1049, 1043 (7th Cir. 2001). Pursuant to this analysis, the Court must consider the impact of any errors in light of the defense evidence, as well as the prosecution evidence. *See Hassine v. Zimmerman*, 160 F.3d 941, 955 (3d Cir. 1998); *Peterkin v. Horn*, 176 F. Supp. 2d 342, 363 (E.D. Pa. 2001).

The circumstances of Kunco's case demonstrate that the cumulative effect of the prosecution's *Brady* evidence; the improper admission of false, misleading, and unreliable bite mark evidence; and the prosecutor's closing arguments endorsing the false, misleading, and unreliable bite mark evidence so undermined the fairness of Kunco's trial that his conviction must be overturned. *See Ege v. Yukins*, 380 F. Supp. 2d at 880 ("Since the bite mark evidence was the only physical evidence tying the petitioner to the crime, its erroneous admission put the petitioner at an actual and substantial disadvantage."). Collectively and cumulatively, these errors denied Kunco due process and violated his state and federal constitutional rights. *See* U.S. CONST. AMENDS. VI, XIII, XIV; PA. CONST., Art. I, §§ 1, 9.

Viewing the entire picture of this case, and considering both the nature of the material presented to the jury that should not have been and the nature of the material not presented that should have been, the Court cannot have much confidence in the jury's verdict. Kunco is innocent and is entitled to a new trial to prove his innocence.

VII. CONCLUSION AND CLAIM FOR RELIEF

It is beyond reproach that "the Fourteenth Amendment cannot tolerate a state criminal conviction obtained by the knowing use of false evidence." *Miller v. Pate*, 386 U.S. at 7; *Giglio v. United States*, 405 U.S. at 153 ("[D]eliberate deception of a court and jurors by the presentation of known false evidence is incompatible with rudimentary demands of justice.") (internal quotations omitted). The "government of a strong and free nation does not need convictions based upon such testimony. It cannot afford to abide with them." *Mesarosh v. Untied States*, 352 U.S. 1, 14 (1956). Kunco's conviction implicates these fundamental constitutional principles. Simply put, Kunco's conviction is

premised on false, misleading, and unreliable bite mark testimony. Dr. Sobel's and David's testimony "has poisoned the water in this reservoir, and the reservoir cannot be cleansed without first draining it of all impurity." *Id*. If the Court "has any duty to perform in this regard, it is to see that the waters of justice are not polluted. Pollution having taken place here, the condition should be remedied at the earliest opportunity." *Id*. As a result, there can be no other just result than to accord Kunco a new trial.

Based on the above allegations and the record of this case, Kunco requests that the Court grant the following relief:

1. The Commonwealth be ordered to respond to this Petition;
2. The Court order such discovery as is necessary to permit Kunco to prove his claims;
3. The Court conduct such evidentiary hearings that are necessary to the resolution of all disputed material facts;
4. The Court permit liberal amendment of the Petition in the interest of justice;
5. The Court grant relief from judgment and conduct further proceedings in accordance with the law.

Respectfully Submitted,

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Counsel for Petitioner
John Kunco

Dated: April 17, 2009

CERTIFICATE OF SERVICE

I, David J. Millstein, hereby certify that on this ___ day of April, 2009, I served the foregoing upon the following person in the manner indicated:

Wayne Gongaware
Assistant District Attorney
Westmoreland County District Attorney's Office
2 N. Main Street, Suite 206
Greensburg, PA 15601
Phone: 724-830-3949 (office) 724-830-3290 (fax)

IN THE COURT OF COMMON PLEAS OF WESTMORELAND COUNTY, CRIMINAL DIVISION

COMMONWEALTH OF PENNSYLVANIA	)	
Respondent,	)	
	)	
v.	)	Case No. 482 Crim. 1991
	)	
	)	
JOHN KUNCO	)	
Petitioner	)	
	)	

VERIFICATION OF JOHN KUNCO PURSUANT TO Pa. R. Crim. Pro. 902(A)(14)

I, John Kunco, hereby verifies as follows:

1. My name is John Kunco. I am currently incarcerated at the State Correctional Institution at Fayette in Pennsylvania, having been convicted of and sentenced for Donna Seaman's December 16, 1990 sexual assault.

2. I am currently represented by counsel from the Innocence Project in New York City.

3. Counsel has my express authorization to file this petition.

4. The facts in this petition are true and correct to the best of my knowledge and belief subject to the penalties under

_____
John Kunco

Dated: April ___, 2009

EXHIBITS

1. March 15, 2009 email from American Academy of Forensic Science President, Thomas L. Bohan, to American Academy of Forensic Science Members

2. Thomas David & Michael Sobel, *Recapturing a Five-Month-Old Bite Mark by Means of Reflective Ultraviolet Photography*, 39 J. FORENSIC SCI. 1560 (1994)

3. Dr. Michael Sobel's July 8, 1991 Report

4. Dr. Thomas David's July 8, 1991 Report