

## A Chip Off the Old Block: Familial DNA Searches and the African American Community

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### Introduction

Juan Rivera sits in a dimly lit visiting room at Stateville Correctional Center in Joliet, Illinois.<sup>1</sup> He is serving a life sentence for the 1992 murder of eleven-year-old Holly Staker,<sup>2</sup> and though he has been in prison for almost twenty years, it is immediately clear that Juan does not belong here. Claims of innocence are common in this place, but his claim is different. During Juan's trial, the jury was presented with a pristine and complete deoxyribonucleic acid (DNA) profile recovered from sperm found in the little girl's vagina after her death.<sup>3</sup> "It was a beautiful sample. It completely excluded Juan," says Jane Raley, Juan's attorney.<sup>4</sup>

So why is Juan in prison? When investigators compared the profile to DNA samples of known offenders from across the country, they found no match.<sup>5</sup> Without the cinematic crescendo that juries crave—there was no dramatic unveiling of the murderer's true identity in open court—the fact that Juan's DNA was not found at the crime scene was muddled into an otherwise complex case.<sup>6</sup> Juan was convicted of murder and sent to live out

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1. Interview with Juan Rivera and Jane Raley, at Stateville Correctional Center, in Joliet, IL (Feb. 18, 2011).

2. *Id.*

3. *Id.*

4. *Id.*

5. *Id.*

6. *Id.* The case was complicated by the fact that Juan allegedly confessed to Holly's murder. However, this confession was riddled with problems—it was not recorded; Juan was young and uneducated at the time of the confession, and claimed he did not understand many of the words written in the confession; and he

the rest of his days at Stateville.<sup>7</sup> Today, he waits for justice, and the DNA profile found in the raped and murdered little girl waits for its match. "I'm hanging on," says Juan.<sup>8</sup>

DNA has long been a valuable resource for the identification of criminal suspects.<sup>9</sup> In light of increasing reliance on familial DNA searches of state and national databases,<sup>10</sup> it is necessary to consider the effect these searches might have on the constitutional rights of African Americans. When identifying a suspect through DNA, a crime laboratory identifies "Short Tandem Repeats" (STRs), patterns in an individual's genetic material that vary considerably from one individual to another.<sup>11</sup> STRs can be recovered from forensic material found at a crime scene and compared to genetic information stored in the Federal Bureau of Investigation's (FBI) Combined DNA Index System (CODIS).<sup>12</sup> If STRs recovered from a crime scene match a profile's STRs in CODIS, investigators can quickly identify a suspect who warrants additional attention.<sup>13</sup>

Familial DNA testing changes this procedure only slightly. The technique makes use of genetic similarities between closely related individuals in order to identify suspects.<sup>14</sup> Scientists and investigators believe that this innovation could greatly expand the scope and ability of CODIS.<sup>15</sup> However, this technique could also

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incorrectly reported several important facts about the crime. *Id.*

7. *Id.*

8. *Id.*

9. In February of 1988, Tommy Lee Andrews became one of the first criminal defendants in the United States to be convicted with the help of DNA evidence. *Andrews v. State*, 533 So. 2d 841, 843 (Fla. Dist. Ct. App. 1989) (affirming the conviction after finding "no other appellate decision addressing the admissibility of DNA identification evidence in criminal cases"). For an early example of a decision regarding the trustworthiness of DNA evidence, see *People v. Castro*, 144 Misc. 2d 956, 973 (N.Y. Sup. Ct. 1989) (concluding that DNA forensic evidence tests are reliable and meet the standard for admissibility of scientific evidence).

10. See Frederick R. Bieber et al., *Finding Criminals Through DNA of Their Relatives*, 312 Sci. 1315, 1316 (2006).

11. Jessica D. Gabel, *Probable Cause from Probable Bonds: A Genetic Tattle Tale Based on Familial DNA*, 21 HASTINGS WOMEN'S L.J. 3, 9 (2010).

12. FED. BUREAU OF INVESTIGATION, CODIS: COMBINED DNA INDEX SYSTEM, available at <http://www.fbi.gov/about-us/lab/codis/codis-brochure-2010> [hereinafter CODIS BROCHURE].

13. *Id.*

14. Ellen Nakashima, *From DNA of Family, a Tool to Make Arrests*, WASH. POST, Apr. 21, 2008, at A1. For example, the alleged "Bind, Torture, Kill" (BTK) killer Dennis Rader was identified when investigators compared DNA found at BTK crime scenes with DNA found in Rader's daughter's medical records. *Id.*

15. Bieber et al., *supra* note 10, at 1315-16 (hypothesizing that the use of familial DNA searches could increase "cold hits," or unconfirmed identifications, from ten to fourteen percent).

result in more frequent identification of African American suspects than suspects in other racial groups.<sup>16</sup> While African Americans comprise less than thirteen percent of the U.S. population,<sup>17</sup> approximately forty percent of the DNA profiles in CODIS are taken from African American individuals.<sup>18</sup> Because familial DNA searches make more extensive use of preexisting database content, use of this technique will, in all likelihood, disproportionately affect the African American community.<sup>19</sup>

This Article seeks to provide a comprehensive analysis of the constitutionality of familial DNA testing in light of the disproportionate effect it will likely have on African Americans. Part I of this Article will first explain how genetic information is traditionally used to identify suspects in a criminal investigation, and how this information is shared at the national level. Part I will also explain how familial search techniques work, and why they might lead to unfair scrutiny of African Americans. Part II will evaluate the constitutionality of familial DNA techniques under the Fourteenth and Fourth Amendments. Part III will examine how states have effectively handled familial DNA searching, and why the federal government must clear the way for use of the technique by the states. This Article concludes that familial DNA testing is constitutional under the Fourteenth and Fourth Amendments regardless of any potentially disproportionate effects on the African American community, and therefore states must determine how they will utilize the technique. In the end, the use of familial DNA testing is best left to the states because, though the technique's federal constitutionality will likely be upheld, states are better equipped to gauge the comfort level of voters, and the workability of emerging practices.

## I. Innovating at the Speed of Crime

Investigators use DNA to accurately tie suspects to forensic evidence. To understand the constitutional implications of familial DNA testing, it is first necessary to look at how DNA is used to identify individuals, and how the use of familial DNA expands the reach of existing DNA databases. This expansion presents unique constitutional concerns for the African American community.

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16. See *infra* Part I.C.

17. *State and County QuickFacts*, U.S. CENSUS BUREAU, <http://quickfacts.census.gov/qfd/states/00000.html> (last revised Nov. 4, 2010).

18. Henry T. Greely et al., *Family Ties: The Use of DNA Offender Databases to Catch Offenders' Kin*, 34 J.L. MED. & ETHICS 248, 258 (2006).

19. *Id.* at 258–59.

### A. DNA and the CODIS Database

DNA is composed of four building blocks, or bases.<sup>20</sup> These bases usually pair with one another predictably, forming a chain of genetic material known as a chromosome.<sup>21</sup> Along this chain, researchers have identified several loci, which are specific genes' locations on the chain.<sup>22</sup> At each locus are two alleles, and every person on earth has one allele from his or her mother and one allele from his or her father.<sup>23</sup> By looking at the same locus in DNA from two different profiles, researchers are able to compare the two profiles with incredible precision.<sup>24</sup> Forensic DNA analysis concentrates on base pairings at thirteen loci in the DNA sequence where "the genetic material . . . is not known to determine a human attribute such as height, weight, or susceptibility to a particular disease."<sup>25</sup> This genetic material, while commonly referred to as "junk DNA,"<sup>26</sup> can be extremely valuable to forensic analysts for identification purposes.

The process to compare and match DNA profiles is relatively straightforward. The genetic material most commonly used in conjunction with criminal investigations is STR DNA,<sup>27</sup> which is a reliable identifier in humans for a variety of reasons.<sup>28</sup> This

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20. Glossary, DNA INITIATIVE, <http://www.dna.gov/glossary/?showpopup=1> (last visited Mar. 6, 2011).

21. For an in-depth description of the pairings of genetic bases, see Jules Epstein, "Genetic Surveillance"—*The Bogeyman Response to Familial DNA Investigations*, 2009 U. ILL. J.L. TECH. & POL'Y, 141, 143 ("In DNA, Cytosine is normally paired with Guanine, while Thymine normally pairs with Adenine.").

22. OFFICE OF BIOLOGICAL & ENVTL. RESEARCH, U.S. DEP'T OF ENERGY, THE GENE GATEWAY WORKBOOK 9 (2011), available at [http://www.ornl.gov/sci/techresources/Human\\_Genome/posters/chromosome/ggworkbook2.pdf](http://www.ornl.gov/sci/techresources/Human_Genome/posters/chromosome/ggworkbook2.pdf) ("The Gene map locus describes where a gene can be found on a chromosome. For the Gene locus 6p21.3, 6 is the chromosome number, p indicates the short arm of the chromosome, and 21.3 is a number assigned to a particular region of the chromosome.").

23. Gabel, *supra* note 11, at 10–11.

24. *Id.* at 26.

25. Epstein, *supra* note 21, at 143.

26. See Jacqueline K. S. Lew, *The Next Step in DNA Database Expansion? The Constitutionality of DNA Sampling of Former Arrestees*, 57 HASTINGS L.J. 199, 204 (2005) (quoting *Kincade v. United States*, 379 F.3d 813, 818 (9th Cir. 2004)) (defining "junk DNA" as "genetically non-informative DNA not presently recognized as containing useful genetic programming material").

27. For a wider discussion of the differences between STR, Y STR, and mtDNA, which falls outside the scope of this Article, see *Frequently Asked Questions (FAQs) on the CODIS Program and the National DNA Index System*, FED. BUREAU OF INVESTIGATION, <http://www.fbi.gov/about-us/lab/codis/codis-and-ndis-fact-sheet> (last visited Mar. 11, 2011) [hereinafter *CODIS Fact Sheet*].

28. *Short Tandem Repeats (STRs)*, DNA DIAGNOSTICS CTR. FORENSICS, <http://www.forensicdnacenter.com/dna-str.html> (last visited Mar. 11, 2011).

nuclear DNA is found in a wide variety of organic materials, as well as everyday items with which these materials come into contact.<sup>29</sup> Most importantly, patterns found in STRs, or repeats, are “highly variable among individuals,” minimizing the chances that they are shared by multiple people.<sup>30</sup>

STRs are also valuable because the quantification of repeats, derived from the length of the DNA segment, can be easily standardized and compared.<sup>31</sup> According to the Canadian Parliamentary Information and Research Service, “[t]he vast majority of the genetic information in the human genome, much of which is essential for life, is the same from one person to the next. However, certain regions of chromosomes exhibit high levels of variation among individuals, and these regions are used as DNA ‘markers’ . . . .”<sup>32</sup> The chromosomal information contained in STR regions always varies from person to person, with the exception of identical twins.<sup>33</sup> “Despite this high specificity, the profile can be described very concisely by simply listing the lengths of the variations found for each of the 13 markers.”<sup>34</sup> A DNA profile is therefore “a series of numbers, each of which represents the result from the analysis of a specific location on the chromosome . . . .”<sup>35</sup> What makes DNA such an effective identifier is that, despite the complexity of isolating the material, technicians are really just comparing the length of loci from two different DNA samples, knowing

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29. See, e.g., NAT'L COMM'N ON THE FUTURE OF DNA EVIDENCE, NAT'L INST. OF JUSTICE, WHAT EVERY LAW ENFORCEMENT OFFICER SHOULD KNOW ABOUT DNA EVIDENCE, *available at* <http://www.ncjrs.gov/pdffiles1/nij/bc000614.pdf> (last visited Apr. 17, 2011) (“DNA is contained in blood, semen, skin cells, tissue, organs, muscle, brain cells, bone, teeth, hair, saliva, mucus, perspiration, fingernails, urine, feces, etc.”); Lew, *supra* note 26, at 204 (adding tooth pulp and bone marrow to the list of organic materials from which DNA can be extracted); *Forensic Identity*, LABCORP, <https://www.labcorp.com/wps/portal/forensic/> (last visited Mar. 11, 2011) (indicating that laboratories are able to glean useful genetic materials from “gum, envelopes, weapons, rocks, and food products” along with “any type of evidence sample”). In *California v. Greenwood*, the Supreme Court held that individuals do not have an expectation of privacy in discarded materials, a concept often applied to these genetically rich substances. 486 U.S. 35, 40 (1988).

30. *Short Tandem Repeats (STRs)*, *supra* note 28.

31. PARLIAMENTARY INFO. & RESEARCH SERV., NEW FRONTIERS IN FORENSIC DNA ANALYSIS: INTERNATIONAL PRACTICES AND IMPLICATIONS FOR CANADA 4 (2009).

32. *Id.*

33. *Id.* at 5.

34. *Id.*

35. *Justice for Sexual Assault Victims: Using DNA Evidence to Combat Crime: Hearing Before the Subcomm. on Crime & Drugs of the S. Comm. on the Judiciary*, 107th Cong. 49 (2002) [hereinafter *Justice for Sexual Assault Victims*] (statement of Dwight E. Adams, Assistant Director, Laboratory Division, Federal Bureau of Investigation).

that these lengths vary from person to person.<sup>36</sup> If the lengths match at enough points along the chain, a genetic match exists.<sup>37</sup>

Statistics are also an important facet in understanding DNA and the role it plays in criminal investigations. Accurate statistics are produced by determining "the frequency with which the combination at a single *locus* occurs across the population" and then calculating a "random-match probability."<sup>38</sup> With this result, investigators can calculate the "probability that a randomly chosen person, other than the suspect, has the genetic profile . . . [.]"<sup>39</sup> "[Ninety-nine] percent, that is how accurate DNA evidence is. One in 30 billion are [sic] likely to be wrong . . ."<sup>40</sup> Some DNA analysis techniques available today, such as the SGM Plus and PowerPlex 16, provide the probability of just one in three trillion individuals, and one in  $2 \times 10^{17}$  individuals, respectively, sharing DNA profiles.<sup>41</sup> The technology continues to move forward at a rapid pace.<sup>42</sup>

Technological advances alone, however, cannot solve crimes. Though investigators know a DNA sequence is unique to the donor, that DNA sample, by itself, cannot help investigators identify the donor.<sup>43</sup> It would be akin to having a clear picture of a suspect's face from a security camera, but having no way to link that face to a name, social security number, or address. DNA evidence collected from a crime scene must be matched against a reference sample taken from a known individual.<sup>44</sup> It is essential, then, to create and maintain a large profile pool.<sup>45</sup> The national CODIS database has filled this role, becoming an increasingly important crime-fighting tool since the early 1990s.<sup>46</sup> CODIS is actually an

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36. See Derek Regensburger, *DNA Databases and the Fourth Amendment: The Time Has Come to Reexamine the Special Needs Exception to the Warrant Requirement and the Primary Purpose Test*, 19 ALB. L.J. SCI. & TECH. 319, 326-27 (2009) (discussing the differing lengths of STRs and how forensic scientists compare these to known DNA profiles to establish identity).

37. *Id.* at 327.

38. Epstein, *supra* note 21, at 144.

39. NAT'L RESEARCH COUNCIL, THE EVALUATION OF FORENSIC DNA EVIDENCE 29 (1996).

40. *Justice for Sexual Assault Victims*, *supra* note 35, at 1 (statement of Sen. Joseph R. Biden, Chairman, S. Subcomm. on Crime & Drugs).

41. See Greg Hampikian, *Advanced DNA Analysis: Innocence Network* (2007) (unpublished presentation), available at <http://www.innocencenetwork.org/docs/InnocNetworkAdvDNA3%202007workshop.pdf>.

42. Gabel, *supra* note 11, at 46.

43. PARLIAMENTARY INFO. & RESEARCH SERV., *supra* note 31, at 2.

44. *Id.*

45. See Greely et al., *supra* note 18, at 251 ("[CODIS's] power seems certain to increase as more DNA samples from offenders are taken, analyzed, and submitted to CODIS.").

46. See CODIS BROCHURE, *supra* note 12 ("[CODIS] began as a pilot software

aggregate of several DNA databases, and functions at the national level through the National DNA Index System (NDIS).<sup>47</sup> The NDIS acts as a clearinghouse for DNA profiles uploaded by each state and the District of Columbia through individual State DNA Index Systems (SDIS).<sup>48</sup> The database can offer investigative leads by linking crimes to one another through the analysis of biological forensic material, thus allowing law enforcement agencies to share information and coordinate investigations.<sup>49</sup> Forensic DNA profiles can be searched against the stored DNA profiles of arrestees and convicted offenders.<sup>50</sup> A traditional DNA “match” refers to an instance in which two DNA samples share each of the twenty-six alleles at the thirteen designated CODIS loci.<sup>51</sup> Thus, if the suspect’s profile is stored in the NDIS, his or her identity will be provided to investigators.<sup>52</sup> Law enforcement agencies can then pursue the suspect through conventional means, reinforcing their investigations with the evidentiary weight of the profile match.<sup>53</sup> DNA profile analysis can also work backwards, exonerating the falsely accused or convicted by demonstrating that they did not donate genetic material.<sup>54</sup>

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project in 1990 serving 14 state and local laboratories. The DNA Identification Act of 1994 formalized the FBI’s authority to establish a National DNA Index System (NDIS) for law enforcement purposes.”).

47. *CODIS Fact Sheet*, *supra* note 27. For a state to become part of the NDIS, the state must satisfy a number of requirements that ensure standardization. *Id.* “[States] . . . agree to abide by the DNA Identification Act of 1994, which involves recordkeeping procedures as well as quality control procedures. They follow a national DNA index system procedures manual and they undergo proficiency testing . . . and then agree to the reporting and confirmation of hits . . .” *Justice for Sexual Assault Victims*, *supra* note 35, at 19 (statement of Dwight E. Adams, Assistant Director, Laboratory Division, Federal Bureau of Investigation).

48. *CODIS Fact Sheet*, *supra* note 27; see Daniel J. Grimm, *The Demographics of Genetic Surveillance: Familial DNA Testing and the Hispanic Community*, 107 COLUM. L. REV. 1164, 1168 (2007) (indicating that by 2004 every state had linked their SDIS with CODIS); *Privacy Impact Assessment: National DNA Index System (DNS)*, FED. BUREAU OF INVESTIGATION (Feb. 24, 2004), <http://www.fbi.gov/foia/privacy-impact-assessments/dns> (defining CODIS as the “automated DNA information processing and telecommunication system that supports NDIS”).

49. *CODIS BROCHURE*, *supra* note 12.

50. *CODIS Fact Sheet*, *supra* note 27.

51. Grimm, *supra* note 48, at 1170.

52. *CODIS Fact Sheet*, *supra* note 27 (explaining that once a candidate profile is matched to an arrestee or convicted offender profile, “the laboratory will go through procedures to confirm the match and, if confirmed, will obtain the identity of the suspected perpetrator”).

53. *Id.* (explaining that a DNA match can be used to establish probable cause, allowing police officers to obtain a DNA sample from the suspect).

54. *Justice for Sexual Assault Victims*, *supra* note 35, at 30 (statement of Linda A. Fairstein, Former Chief, Sex Crimes Prosecution Unit, New York County District Attorney’s Office); *How Many People Have Been Exonerated?*, INNOCENCE

Before joining the NDIS network, a laboratory must be able to process DNA profiles under national FBI guidelines.<sup>55</sup> For forensic DNA profiles recovered in connection with criminal investigations, investigators must attempt to identify all thirteen "core loci" and generate results for at least ten loci in order to submit results to, and search them against, the NDIS.<sup>56</sup> In other words, incomplete DNA profiles and profiles that have sustained damage rendering fewer than ten loci suitable for comparison are not accepted by the NDIS. To submit the profile of a convicted, arrested, or detained individual, all thirteen core CODIS loci must be identified.<sup>57</sup> The NDIS contains "DNA profiles contributed by federal, state, and local participating forensic laboratories,"<sup>58</sup> and the network is constantly expanding.<sup>59</sup> The system is currently maintained by the FBI, and makes stored DNA profiles available to state and federal law enforcement agencies.<sup>60</sup> In addition to providing FBI oversight, the DNA Identification Act of 1994<sup>61</sup> governs the storing and testing of DNA profiles.<sup>62</sup>

Arrested individuals' DNA profiles are uploaded to the NDIS database depending largely on the laws of the state in which the individual was arrested.<sup>63</sup> The FBI is required to expunge DNA profiles from the NDIS and state databases that were included "on

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PROJECT, [http://www.innocenceproject.org/Content/How\\_many\\_people\\_have\\_been\\_exonerated\\_through\\_DNA\\_testing.php](http://www.innocenceproject.org/Content/How_many_people_have_been_exonerated_through_DNA_testing.php) (last visited Mar. 11, 2011) ("Since 1989, more than 250 people in 34 states have been exonerated through post-conviction DNA testing.").

55. *CODIS Fact Sheet*, *supra* note 27. The FBI requires that profiles be generated "in accordance with the FBI Director's Quality Assurance Standards" and that accredited laboratories meet several external auditing requirements and follow federal expungement procedures. *Id.* Additionally, "DNA data must meet minimum loci requirements for the specimen category." *Id.*

56. *See id.* (presenting the thirteen "core CODIS loci").

57. *Id.*

58. *Id.*

59. CODIS BROCHURE, *supra* note 12. "All 50 states, the District of Columbia, the federal government, the U.S. Army Criminal Investigation Laboratory, and Puerto Rico" add DNA profiles to the NDIS. *CODIS Fact Sheet*, *supra* note 27.

60. *See CODIS Fact Sheet*, *supra* note 27.

61. 42 U.S.C. § 14131-14134 (2006).

62. *Id.* § 14131; *CODIS Fact Sheet*, *supra* note 27.

63. CODIS BROCHURE, *supra* note 12 (specifying that arrestee profiles will be added to the database only "if state law permits the collection of arrestee samples"). CODIS is given constitutional support for collecting these profiles by Justice Harlan's oft-cited concurrence in *Katz v. United States*, which took note of a diminished expectation of privacy. *See Katz v. United States*, 389 U.S. 347, 361 (1967) (Harlan, J., concurring) (holding that societal and individual expectations of privacy determine the extent of Fourth Amendment protections); *see also Rise v. Oregon*, 59 F.3d 1556, 1560 (9th Cir. 1995) (reiterating an individual's diminished expectation of privacy upon being convicted of a felony).



the basis of an arrest . . . if the Attorney General receives . . . a final court order establishing that such charge has been dismissed or has resulted in an acquittal or that no charge was filed within the applicable time period.”<sup>64</sup> The Director of the FBI is also required to remove from CODIS the “DNA analysis” of an individual “if the Director receives, for each conviction of the person of a qualifying offense, a certified copy of a final court order establishing that such conviction has been overturned.”<sup>65</sup> In other words, if the investigation is abandoned or the conviction overturned, the DNA information is removed from the national database.

States must fulfill similar expungement obligations in order to access the national database.<sup>66</sup> According to the DNA Identification Act, “a State shall promptly expunge from [its] index the DNA analysis of a person included in the index by that State” if state officials receive indication that the relevant conviction has been overturned, no charge was filed within the required time period, or the charge resulted in an acquittal or dismissal.<sup>67</sup> These expungement regulations are implemented in a variety of ways at the state level, and state codes are not always consistent with federal regulations.<sup>68</sup> “[M]any databanking statutes depart from the notion that civil privacy protections ought to be a default policy.”<sup>69</sup> Instead, six years after the passage of the DNA Identification Act of 1994, just five states had passed laws requiring the automatic expungement of profiles for individuals who have been exonerated.<sup>70</sup> California provides for “periodic audits of [its] databanks for samples or records inappropriately retained.”<sup>71</sup> As of 2000, Illinois prohibited profile expungement under any circumstances.<sup>72</sup> DNA testing has also become a more frequent occurrence upon arrest, further complicating expungement procedures.<sup>73</sup> Some state databases consequently contain DNA

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64. 42 U.S.C. § 14132(d)(1)(A)(ii).

65. *Id.* § 14132(d)(1)(A)(i).

66. *Id.* § 14132(d)(2)(A).

67. *Id.*

68. See Jonathan Kimmelman, *Risking Ethical Insolvency: A Survey of Trends in DNA Databanking*, 28 J.L. MED. & ETHICS 209, 211 (2000) (noting that in the majority of the thirty-nine state codes governing expungement practices, individuals have the burden of initiating an expungement proceeding).

69. *Id.*

70. *Id.*

71. *Id.*

72. *Id.*

73. See Gordon Thomas Honeywell Governmental Affairs, *State DNA Database Laws: Qualifying Offenses*, DNARESOURCE.COM (Sept. 2010), <http://www.dnaresource.com/documents/statequalifyingoffenses2010pdf> [hereinafter *State DNA*

profiles of individuals who have never been convicted or have since been exonerated of a crime. Thus, there is inconsistency as to whether such profiles can be accessed at the national level.<sup>74</sup> As a result of the potential to inappropriately retain profiles, any expansion of the database based on the existing content, such as familial searches, would complicate these issues further.

CODIS maintains a remarkable success rate in the identification of suspects based on genetic material left at crime scenes.<sup>75</sup> By 2002, the database played a role in "identifying a suspect or linking serial crimes in nearly 5,000 investigations."<sup>76</sup> The intricacies of a criminal investigation can be vastly simplified by a CODIS match, or "hit."<sup>77</sup> The national character of the database also provides information that investigators could not determine through conventional profiling.<sup>78</sup> "For example, in New York, one rape involved an elderly woman, the other, the rape of a 7-year-old, and yet DNA linked these two crimes together, linked two crimes that likely would not have been seen to have been committed by the same individual, according to investigators."<sup>79</sup> CODIS's strength is the ability to synthesize large amounts of information from diverse sources to create a usable piece of information.<sup>80</sup> The database "form[s] a system of interconnected 'libraries' against which samples of unknown origin are compared."<sup>81</sup> On the whole, "the success of CODIS is largely attributable to the cooperative efforts of the criminal justice community,

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*Database Laws*]. As of September 2010, twelve states required that DNA samples be taken from individuals arrested for any felony offense, even if they are not convicted. *Id.* Additionally, while most states require DNA sampling from individuals arrested for misdemeanors of a sexual nature, four states currently mandate sampling for a variety of non-sexual misdemeanor offenses. *Id.* The data also show that all states except Idaho require individuals convicted of felonies to have their DNA sampled and archived. *Id.* All states except Georgia require DNA sampling upon serving a felony jail and/or probation term. *Id.*

74. See Kimmelman, *supra* note 68, at 211.

75. See *Justice for Sexual Assault Victims*, *supra* note 35, at 11 (statement of Dwight E. Adams, Assistant Director, Laboratory Division, Federal Bureau of Investigation) (detailing various successes of CODIS in identifying suspects).

76. *Id.*

77. See, e.g., *id.* Using this technique, a 1998 California rape was linked to four rapes in Arizona, and a rape in Florida, for which NDIS had an offender profile uploaded. *Id.*

78. *Id.*

79. *Id.*

80. See *id.*

81. Randall S. Murch, *Forensic Perspective on Bioterrorism and the Proliferation of Bioweapons*, in *FIREPOWER IN THE LAB: AUTOMATION IN THE FIGHT AGAINST INFECTIOUS DISEASES AND BIOTERRORISM* 203, 211 (Scott P. Layne et al. eds., 2001).

law enforcement, victims, Sexual Assault Nurse Examiners, prosecutors, and, of course, the crime laboratory personnel, Federal, State, and local crime laboratories.”<sup>82</sup> It has become clear in the last twenty-five years that DNA analysis is now an indispensable criminal justice tool, and the development of CODIS is essential to the technique’s success.

*B. Familial DNA Searches: Expanding the Capabilities of CODIS*

The reach of CODIS and NDIS could exponentially expand with the help of familial DNA techniques. By some estimates, the use of familial DNA searches could increase “cold hits” by forty percent, a precious advantage during the investigation of violent crimes.<sup>83</sup> Familial DNA testing looks at concrete similarities between DNA profiles to identify close relatives of the profile donor.<sup>84</sup> Related individuals’ DNA profiles exhibit similarities beyond those exhibited by the population at large.<sup>85</sup> The results of this genetic similarity can be seen everywhere—families look alike and share medical characteristics because they also share genetic material.<sup>86</sup> These similarities break down increasingly as the familial relationship becomes more attenuated.<sup>87</sup> Familial DNA testing is therefore used to identify suspects that are “first-degree relatives”<sup>88</sup> of the DNA profile donor.<sup>89</sup>

Allele matches in highly variable areas of DNA, even when

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82. *Justice for Sexual Assault Victims*, *supra* note 35, at 11 (statement of Dwight E. Adams, Assistant Director, Laboratory Division, Federal Bureau of Investigation).

83. Bieber et al., *supra* note 10, at 1315–16.

84. Nakashima, *supra* note 14, at A9.

85. Bieber et al., *supra* note 10, at 1315.

86. Gabel, *supra* note 11, at 19; see Greely et al., *supra* note 18, at 251–53 (estimating that on average 16.7 of the twenty-six alleles at CODIS loci are shared by siblings, while the general population shares an average of 8.7 alleles at CODIS loci); Kimberly A. Wah, *A New Investigative Lead: Familial Searching as an Effective Crime-Fighting Tool*, 29 WHITTIER L. REV. 909, 947 (2008) (citing studies finding that full siblings share an average of four loci, while the general population, on average, shares less than one loci).

87. Greely et al., *supra* note 18, at 251–52 (“Second degree relatives—uncles or aunts and nephews or nieces, grandparents and grandchildren, half-brothers and half-sisters—share one quarter of their DNA variations by descent; third degree relatives (first cousins or great-grandparents and great-grandchildren, among others) share one-eighth.”).

88. *Id.* at 259 (defining first-degree relatives as parents, siblings, and children).

89. Bieber et al., *supra* note 10, at 1315 (“Our simulations demonstrate that kinship analysis would be valuable now for detecting potential suspects who are the parents, children, or siblings of those whose profiles are in forensic databases.”).

they occur at fewer than thirteen loci, are strongly indicative of a familial relationship between donors of the test profile and the database profile.<sup>90</sup> Where an ordinary DNA test requires a match of twenty-six alleles at thirteen loci, “[a] match on at least sixteen alleles, especially if they involve a rare one, could indicate that a close relative left a sample.”<sup>91</sup> Law enforcement officials have long been intrigued by similarities found between imperfectly matched DNA profiles.<sup>92</sup> Until recently, however, DNA database software in the United States was not formatted to notice or report these patterns.<sup>93</sup> The advent of familial DNA testing in a criminal justice context, therefore, changed the manner in which CODIS software reports its findings, not the manner in which it searches the database.<sup>94</sup> The similarities between ordinary DNA testing and familial DNA testing might create the perception that familial DNA testing is familiar and therefore legitimate.

Investigators have used familial DNA testing under different circumstances for a number of years. “Although direct comparisons of DNA profiles of known individuals and unknown biological evidence are most common, indirect genetic kinship analyses, using the DNA of biological relatives, are often necessary for humanitarian mass disaster and missing person identifications.”<sup>95</sup> In Britain, home to the largest DNA database in the world,<sup>96</sup> law enforcement officials have used the technique successfully for years.<sup>97</sup>

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90. Epstein, *supra* note 21, at 146 (“[W]hen such a high correspondence is found, it often means that the perpetrator is a close relation of the individual in the DNA index.”). A correspondence of eleven or twelve loci is often indicative of a close familial relationship. *Id.*

91. Nakashima, *supra* note 14, at A9.

92. *See id.* at A1, A9 (describing the emergence of familial DNA testing).

93. Epstein, *supra* note 21, at 146 (“In a typical DNA search, the profile from the pertinent crime-scene evidence is uploaded, and the CODIS software determines whether there is a ‘hit,’ *i.e.*, a match at all thirteen loci. Until 2006, a correspondence at either twelve or eleven loci, with disparities at the remaining location(s), went unreported.”); Maura Dolan & Jason Felch, *Tracing a Suspect Through a Relative*, L.A. TIMES, Nov. 25, 2008, at A1 (“The FBI software was not designed to find relatives, and a standard search accidentally eliminates more than 99.9% of relatives while often fingering people whose profiles are similar by pure chance, experts say.”).

94. *See* Epstein, *supra* note 21, at 146–47 (describing the process of “prioritization” used to determine which partial matches are most likely to be close relatives of the forensic profile submitted to CODIS).

95. Bieber et al., *supra* note 10, at 1315 (footnote omitted).

96. Nigel Morris, *The Big Question: Why Is Britain's DNA Database the Biggest in the World, and Is It Effective?*, INDEP. (London), Nov. 12, 2009, at 42, available at <http://www.independent.co.uk/news/uk/home-news/the-big-question-why-is-britains-dna-database-the-biggest-in-the-world-and-is-it-effective-1818878.html>.

97. *See, e.g.*, Bieber et al., *supra* note 10, at 1315 (“[T]he brutal 1988 murder of

### C. A View from the African American Community

The African American community represents just 12.9% of the total population of the United States, roughly one-sixth the size of the White population.<sup>98</sup> However, more than 28% of arrests across the country for all categories of crime are of African Americans.<sup>99</sup> Racial disparities become more evident when these statistics are broken down by the type of crime.<sup>100</sup> For instance, African Americans represented 49.3% of arrests for murder and non-negligent manslaughter in 2009.<sup>101</sup> Over 32% of those arrested for forcible rape and 23.8% of individuals arrested for other sex offenses were African American.<sup>102</sup> Incarceration rates exemplify similar disparities.<sup>103</sup> African Americans made up 39% of the jail and prison population in 2009, and African American males faced a 32% chance of serving time in prison at some point in their lives.<sup>104</sup>

Given DNA profile reporting laws, it is clear that a majority of individuals incarcerated for violent crimes such as murder, non-negligent homicide, rape, and sexual crimes will be required to submit a DNA sample to state and national databases.<sup>105</sup> As discussed above, even after acquittal or dismissal of charges, expungement remains a challenge, and success depends largely on

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16-year-old Lynette White . . . was finally solved in 2003. A search of the U.K. National DNA Database for individuals with a . . . rare allele found in crime scene evidence . . . identified a 14-year-old boy with a similar overall DNA profile. This led police to his paternal uncle, Jeffrey Gafoor.” (footnote omitted). Gafoor later confessed and was convicted of the murder. *Id.*

98. See U.S. CENSUS BUREAU, *supra* note 17 (detailing that the population of the United States in 2009 was composed of ethnicities and races in the following proportions: 79.6% White; 12.9% Black; 1% American Indian and Alaska Native; 4.6% Asian; 0.2% Native Hawaiian and other Pacific Islander; 1.7% individuals reporting two or more races; 15.8% persons of Hispanic or Latino origin; and 65.1% non-Hispanic White).

99. See *Uniform Crime Reports: Table 43: Arrests by Race, 2009*, FED. BUREAU OF INVESTIGATION, <http://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2009> (last modified Sept. 2010) (follow “Go to Arrest Tables” hyperlink under “Persons Arrested” tab; then follow “Table 43” hyperlink under “Arrest Data Tables” tab).

100. This disparity is especially true when considering crimes that use DNA evidence as part of a criminal investigation. *Id.*

101. See *id.*

102. See *id.*

103. For a detailed summary of prison demographics and statistics, see *Facts About Prison and Prisoners*, THE SENTENCING PROJECT, (Dec. 2010), [http://www.sentencingproject.org/doc/publications/publications/inc\\_factsAboutPrison\\_Dec2010.pdf](http://www.sentencingproject.org/doc/publications/publications/inc_factsAboutPrison_Dec2010.pdf).

104. *Id.* Data also indicate that “[o]ne in ten black males aged 25–29 was in prison or jail in 2009.” *Id.*

105. Compare 42 U.S.C. § 14132 (2006) (facilitating the exchange of DNA identification information), with *State DNA Database Laws*, *supra* note 73 (identifying the convictions and arrests that qualify for inclusion in DNA databases).

the policies of the state administering the database.<sup>106</sup> Unsurprisingly, African American DNA profiles constitute an incongruent proportion—roughly forty percent—of DNA databases at the state and national levels.<sup>107</sup> “[T]he percentage of African-Americans who might be identified as suspects through [familial DNA searches] would be roughly four to five times as high as the corresponding percentage of U.S. Caucasians . . . .”<sup>108</sup>

Some academics predict that the widespread use of familial DNA search techniques could lead to “a new category of people effectively . . . placed under lifetime genetic surveillance” without ever being convicted of a crime.<sup>109</sup> This group’s “composition would reflect existing demographic disparities in the criminal justice system, in which arrests and convictions differ widely based on race, ethnicity, geographic location, and social class.”<sup>110</sup> However, there is a bright side to this disparity. Because an uneven portion of the nation’s prison population is African American, this minority community stands to benefit from recent exonerations made possible by traditional and familial DNA techniques.<sup>111</sup> The Supreme Court has peripherally addressed similar issues.<sup>112</sup> By examining the lopsided experiences of the African American com-

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106. Kimmelman, *supra* note 68, at 211 (arguing that the burden has been placed on the acquitted or exonerated individual to pursue expungement of his or her DNA profile from the state and national database systems).

107. Grimm, *supra* note 48, at 1176 (“[W]e assume, based on the felony conviction statistics, that African-Americans make up at least forty percent of the CODIS Offender Index, or roughly 1.1 million people out of 2.75 million.”).

108. Greely et al., *supra* note 18, at 259 (hypothesizing an increased rate of African American identification if CODIS continues its use of current loci).

109. Bieber et al., *supra* note 10, at 1316.

110. *Id.* The fear of decentralized DNA searches disproportionately targeting socio-economically disadvantaged individuals has been noted in several publications. For a discussion on disproportionate effects on the Hispanic community, see Grimm, *supra* note 48, at 1175–80. For a discussion on how this affects the African American community, see Greely et al., *supra* note 18, at 258–59.

111. *Compare Racial Disparity*, THE SENTENCING PROJECT, <http://www.sentencingproject.org/template/page.cfm?id=122> (last visited Feb. 25, 2011) (estimating that sixty percent of the national prison population is composed of minorities), *with Innocence Project Case Profiles*, THE INNOCENCE PROJECT, <http://www.innocenceproject.org/know/> (last visited Feb. 25, 2011) (showing a sharp increase in the rate of exonerations in the United States since the advent of DNA analysis).

112. See *McCleskey v. Kemp*, 481 U.S. 279, 292–93 (1987) (holding that the petitioner failed to demonstrate that decisionmakers acted with discriminatory purpose in his case); *Washington v. Davis*, 426 U.S. 229, 242 (1975) (holding that racially disparate impacts shall not be the “sole touchstone” of racial discrimination); *Yick Wo v. Hopkins*, 118 U.S. 356, 373–74 (1886) (holding that a statute enforced with an “evil eye and uneven hand” will not be upheld). See *infra* Part II.A for further discussion.

munity with criminal justice systems, it is possible to anticipate potential problems with the expansion of DNA databases. It is also possible to examine potential benefits of new technologies.

## II. Familial DNA and the Founding Fathers: A Sound Constitutional Foundation

The use of familial DNA searches has several constitutional implications. Ultimately, the constitutionality of familial DNA testing is supported by both the Fourteenth Amendment and the Fourth Amendment. The implementation of familial DNA search techniques will likely survive inevitable constitutional challenges.

### A. Fourteenth Amendment Support for Familial DNA Searches

There is a distinct possibility that the use of familial DNA testing will be challenged as having a disproportionate effect on the African American community. Because African Americans are already disproportionately represented in the CODIS database, expanding the ability to search relatives of individuals in the database would subject increased numbers of African Americans, including those with no criminal records, to surveillance without an independent cause for suspicion.<sup>113</sup> However, Supreme Court jurisprudence regarding the Equal Protection Clause of the Fourteenth Amendment<sup>114</sup> supports the constitutionality of familial DNA testing.

Any progress made under the Equal Protection Clause regarding statistical disproportionality was thoroughly abated by the Supreme Court's holding in *Washington v. Davis*.<sup>115</sup> Justice White's opinion established that while racially disproportionate impact "is not irrelevant . . . it is not the sole touchstone of an invidious racial discrimination forbidden by the Constitution. Standing alone, it does not trigger the rule that racial classifications are to be subjected to the strictest scrutiny and are justifiable only by the weightiest of considerations."<sup>116</sup> Justice

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113. Compare Grimm, *supra* note 48, at 1176 (hypothesizing that approximately forty percent of the CODIS database is composed of DNA profiles taken from African American individuals), with Greely et al., *supra* note 18, at 258–59 (predicting an increased rate of African American identification under current CODIS techniques).

114. U.S. CONST. amend. XIV, § 1 ("[N]or shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.").

115. 426 U.S. 229 (1976).

116. *Id.* at 242 (citation omitted).

White continued that an "invidious discriminatory purpose" may be inferred from the fact that "the law bears more heavily on one race than another."<sup>117</sup> Still, the Supreme Court has not held that a facially neutral law that serves a legitimate government interest is invalidated by the Equal Protection Clause based solely on a racially disproportionate impact.<sup>118</sup> Instead, a "racially discriminatory purpose" must be found.<sup>119</sup>

This line of "purpose, not effect" cases dates back to *Yick Wo v. Hopkins*.<sup>120</sup> In *Yick Wo*, the Court considered a San Francisco city ordinance regulating the establishment and maintenance of laundries.<sup>121</sup> Under the ordinance, it was illegal to operate a laundry "without having first obtained the consent of the board of supervisors . . . ."<sup>122</sup> While neutral on its face, and passed in furtherance of a legitimate government interest, this law was enforced in a manner designed to "drive out of business all the numerous small laundries, especially those owned by Chinese, and give a monopoly" to larger, Caucasian-owned businesses.<sup>123</sup> The Court held that a facially neutral statute can nonetheless be invalidated if it is enforced "with an evil eye and an unequal hand, so as practically to make unjust and illegal discriminations between persons in similar circumstances . . . ."<sup>124</sup> In effect, unequal enforcement can reveal a discriminatory purpose, but it is the discriminatory purpose itself that violates the Fourteenth Amendment.

Familial DNA testing will be upheld under the *Washington* and *Yick Wo* standards as long as it is implemented under a constitutional government power, and does not subject specific

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117. *Id.*

118. *Id.* ("[W]e have not held that a law, neutral on its face and serving ends otherwise within the power of government to pursue, is invalid under the Equal Protection Clause simply because it may affect a greater proportion of one race than of another.").

119. *Id.* at 240.

120. 118 U.S. 356 (1886).

121. *See id.* at 368.

122. *Id.* at 358. The statute exempted brick and stone structures, as it was passed in response to the fear of fire in rapidly growing U.S. cities. *Id.* at 362. The petitioner received a certification from the city's fire wardens indicating "that the stoves, washing and drying apparatus, and the appliances for heating smoothing irons, are in good condition, and that their use is not dangerous to the surrounding property from fire . . . ." *Id.* at 358. These inspections were conducted in accordance with an order prohibiting open flames in residential buildings. *Id.*

123. *Id.* at 362, 374 (stating that approximately two hundred applications from Chinese-owned businesses were denied, while all but one of the applications from Caucasian-owned businesses were granted).

124. *Id.* at 373-74.



racial groups “to sample collection at a rate so suspiciously disproportionate as to raise an inference of discriminatory intent.”<sup>125</sup> Current familial DNA protocols and implementations meet these requirements, as they are not collected, nor are they distinguishable, based on racial or ethnic considerations. The laws establishing CODIS and providing for its maintenance are facially neutral, and make no mention of race.<sup>126</sup>

Furthermore, the use of familial DNA testing also satisfies the broader test laid out under *Yick Wo*.<sup>127</sup> The STR DNA utilized for CODIS identification purposes is largely acknowledged to be “junk DNA” and is “not presently recognized as containing useful genetic programming material.”<sup>128</sup> STR DNA reveals precious few personal attributes about the donor. In fact, the STR sites targeted by law enforcement agents and CODIS administrators were “purposely selected because they are not associated with any known physical or medical characteristics,”<sup>129</sup> but are still highly variable between individuals.<sup>130</sup> It is therefore currently impossible to determine an individual’s race using the STR DNA provided to crime laboratories.<sup>131</sup> This would also be true under familial DNA testing circumstances.<sup>132</sup> Thus, the use of DNA profiling, including familial techniques, provides more insulation from the use of racial descriptions than would an eyewitness account of a crime.<sup>133</sup> It is not until the CODIS-certified laboratory goes through statutorily required procedures, including a number of double-blind features, that any identity would be

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125. Grimm, *supra* note 48, at 1186 (hypothesizing that familial DNA testing will survive equal protection review).

126. See *CODIS Fact Sheet*, *supra* note 27 (specifying the categories of DNA data that may be maintained in CODIS, which do not include race or racial proxies as considerations).

127. See 118 U.S. at 373–74.

128. Lew, *supra* note 26, at 204.

129. H.R. REP. NO. 106-900, pt. 1, at 27 (2000).

130. Lew, *supra* note 26, at 204.

131. *Cf. id.* at 205 (explaining that many believe so-called “junk DNA” is entirely non-genic and uninformative). However, some scientists maintain that “junk DNA” may indeed reveal the “likelihood that the carrier is of a particular race or sex.” *Id.*

132. *Cf. CODIS Fact Sheet*, *supra* note 27 (demonstrating that the STR DNA data researchers would use to perform familial DNA searches are not categorized or collected based on racial characteristics).

133. See Vivian Herrera et al., Examining the Cross-Race Effect Using Racially Ambiguous Faces 1–4 (April 2000) (unpublished paper), available at <http://eyewitness.utep.edu/Documents/Herrera%20WPA%202000.pdf> (finding that the “cross-race effect,” in which study participants “reliably demonstrate[] that other-race faces are more difficult to accurately recognize than same-race faces,” is not “caused by inexperience with [individuals of] another race”).

ascertainable.<sup>134</sup>

Even if statistical data show a significant inflation in the apprehension of African American individuals as a result of familial DNA testing, a disparate impact in other words, the technique will likely be upheld. In *McCleskey v. Kemp*,<sup>135</sup> the Supreme Court upheld the death penalty in the face of statistics indicating a racial disparity in the imposition of the death sentence.<sup>136</sup> McCleskey, the petitioner, relied heavily upon a study on racial disparities in the application of the death penalty,<sup>137</sup> which found that eleven percent of defendants convicted of murdering a Caucasian victim received a death sentence, compared to just one percent of those convicted of murdering an African American.<sup>138</sup>

The Supreme Court stated that "to prevail under the Equal Protection Clause, McCleskey must prove that the decisionmakers in *his* case acted with discriminatory purpose."<sup>139</sup> Statistical proof is only accepted to prove intent to discriminate under limited circumstances.<sup>140</sup> Death penalty cases are conducted under conditions which vary a great deal from these scenarios.<sup>141</sup> "Each jury is unique in its composition, and the Constitution requires that its decision rest on consideration of innumerable factors that

134. *CODIS Fact Sheet*, *supra* note 27. The laboratory must first confirm the match, then obtain the identity of the CODIS profile provider using the profile's "Specimen Identification Number" before linking the profile to any individual. *Id.*

135. 481 U.S. 279 (1987).

136. *Id.* at 279. McCleskey, a Black man from Georgia, was sentenced to death after being convicted of killing a White police officer. *Id.* at 283-85.

137. *Id.* at 286. This study looked at the disparity in the imposition of the death penalty based on the race of the victim and defendant in over 2000 murder cases. See David Baldus, Charles Pulaski & George Woodworth, *Comparative Review of Death Sentences: An Empirical Study of the Georgia Experience*, 74 J. CRIM. L. & CRIMINOLOGY 661 (1983).

138. The study also found that "prosecutors sought the death penalty in 70% of the cases involving black defendants and white victims; 32% of the cases involving white defendants and white victims; 15% of the cases involving black defendants and black victims; and 19% of the cases involving white defendants and black victims." *McCleskey*, 481 U.S. at 287.

139. *Id.* at 292.

140. *Id.* at 293. The Court limits the use of statistical proof of the discriminatory effects of a statute to the following circumstances: jury selection, Title VII of the Civil Rights Act of 1964, and constitutional violations only under the most infrequent of circumstances. *Id.* at 293-97. The court cited *Yick Wo v. Hopkins* and *Gomillion v. Lightfoot* as examples of these infrequent circumstances. *McCleskey*, 481 U.S. at 293 n.12. In *Gomillion*, a state legislature changed the boundaries of a city to exclude 395 of 400 African American voters. 364 U.S. 339, 348 (1960).

141. *McCleskey*, 481 U.S. at 294 ("[T]he nature of the capital sentencing decision, and the relationship of the statistics to that decision, are fundamentally different from the corresponding elements in the venire-selection or Title VII cases.").

vary according to the characteristics of the individual defendant and the facts of the particular capital offense.”<sup>142</sup> Thus, one might find statistical variability in the application of capital punishment from race to race, but that might be a symptom of factors that the jury permissibly considers, and not a symptom of discriminatory intent. This process is akin to the decisionmaking process under CODIS.<sup>143</sup> In choosing to pursue a DNA profile match, CODIS administrators follow a statutorily required process that is highly specialized in order to avoid pursuing false matches.<sup>144</sup> It is therefore likely that racial variability is a result of, not the motive for, permissible DNA investigations.

McCleskey also challenged the imposition of the death penalty by claiming that lawmakers and judges violated the Equal Protection Clause when they provided for capital punishment despite being aware of racially disproportionate results in its implementation.<sup>145</sup> The Court, however, rejected that argument and cited *Personnel Administrator of Massachusetts v. Feeney*,<sup>146</sup> which stated that “[d]iscriminatory purpose’ . . . implies more than intent as volition or intent as awareness of consequences. It implies that the decisionmaker . . . selected or reaffirmed a particular course of action at least in part ‘because of,’ not merely ‘in spite of,’ its adverse effects upon an identifiable group.”<sup>147</sup> To be discrimination, a law or policy had to have been motivated, at least in part, by discrimination.

To succeed against CODIS’s use of familial DNA testing, one would have to prove not only that the technique has a racially disparate impact, but also that CODIS administrators and investigators chose to conduct familial DNA testing, at least in part, because of its disparate impact.<sup>148</sup> Such a contention would mischaracterize CODIS’s operations, as the database makes use of only

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142. *Id.*

143. See *CODIS Fact Sheet*, *supra* note 27.

144. *Id.* (explaining that once a match is found in the database, administrators recheck the process used to match the candidate profile to the CODIS profile, confirm the match, and only then do they obtain the identity of the candidate).

145. *McCleskey*, 481 U.S. at 297–98.

146. 442 U.S. 256 (1979).

147. *McCleskey*, 481 U.S. at 298 (quoting *Feeney*, 442 U.S. at 279 (internal citations omitted)).

148. *Id.* at 298 (finding that *McCleskey* failed to demonstrate that the legislature “maintains the capital punishment statute because of the racially disproportionate impact suggested by the Baldus study”); see, e.g., *Feeney*, 442 U.S. at 279–80 (requiring proof that a law providing for the expedited promotion of veterans in civil service positions was enacted because of a desire to reinforce stereotypes about women in order to establish that the law violated the Equal Protection Clause).

“junk DNA” lacking any “useful genetic programming material.”<sup>149</sup> This blind reliance on the data, and not peripheral factors, ensures that a disparate impact remains a result, not a motive.

Furthermore, there is no evidence that CODIS administrators and law enforcement officials seek to adopt familial DNA testing *because of* the racially disparate impact it might have. If that were the case, the entire CODIS system, regardless of whether familial testing was used, would be unconstitutional simply because of the high proportion of minority DNA profiles in the system.<sup>150</sup> Familial DNA testing uses the same genetic information as conventional CODIS searches, and produces similarly skewed results.<sup>151</sup> Despite the database’s racial composition, challenges to the constitutionality of profile collection laws have been unsuccessful.<sup>152</sup> This may reflect the argument that “databank configurations and resultant familial test results are the natural byproduct of objective data collection.”<sup>153</sup> In other words, the forty percent representation of African Americans in the national DNA database simply reflects the fact that forty percent of the offenders whose profiles are statutorily required to be uploaded onto CODIS are African American. This disparity is a byproduct of the criminal justice system as a whole, stemming from a multitude of legal and socioeconomic factors that serve to create or reinforce racial disparities throughout society.<sup>154</sup> A constitutional challenge to familial DNA testing would therefore require an argument similar to the one so strongly rebuffed by the Supreme Court in *McCleskey*.<sup>155</sup>

*B. Familial DNA as an Accurate Component of Probable Cause*

The Fourth Amendment requires probable cause for the

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149. Lew, *supra* note 26, at 204.

150. See Greely et al., *supra* note 18, at 258 (citing data indicating that at least forty percent of the CODIS Offender Index is composed of African Americans).

151. Grimm, *supra* note 48, at 1176 (forecasting that familial testing would make four percent of the Caucasian population, compared to seventeen percent of African Americans, findable through the system).

152. Karen J. Maschke, *DNA and Law Enforcement*, in FROM BIRTH TO DEATH AND BENCH TO CLINIC: THE HASTINGS CENTER BIOETHICS BRIEFING BOOK FOR JOURNALISTS, POLICYMAKERS, AND CAMPAIGNS 45, 45–46 (Mary Crowley ed., 2008), available at [http://www.thehastingscenter.org/uploadedFiles/Publications/Briefing\\_Book/dna%20and%20law%20enforcement%20chapter.pdf](http://www.thehastingscenter.org/uploadedFiles/Publications/Briefing_Book/dna%20and%20law%20enforcement%20chapter.pdf).

153. Grimm, *supra* note 48, at 1188.

154. *Id.*

155. *McCleskey v. Kemp*, 481 U.S. 279, 298 (1987).

issuance of warrants.<sup>156</sup> The use of DNA testing to compare a CODIS profile to forensic evidence found at a crime scene undoubtedly constitutes a “search” under some circumstances.<sup>157</sup> In *Katz v. United States*,<sup>158</sup> Justice Harlan’s widely cited concurrence specified that a search occurs when an individual has a subjective expectation of privacy, *and* that expectation is one that society recognizes as reasonable.<sup>159</sup> The individual must have also “manifested a subjective expectation of privacy in the object of the challenged search.”<sup>160</sup> These principles were applied in *California v. Greenwood*,<sup>161</sup> which turned on the concept of society’s “accept[ance] as reasonable respondents’ claim to an expectation of privacy in trash left for collection in an area accessible to the public.”<sup>162</sup> Consequently, the Court reasoned that the defendants “exposed their garbage to the public sufficiently to defeat their claim to Fourth Amendment protection . . . . [R]espondents placed their refuse at the curb for the express purpose of conveying it to a third party.”<sup>163</sup> In doing so, they manifested a lack of the critical reasonable expectation of privacy.<sup>164</sup>

This precedent applies to the various investigative techniques employed in conjunction with familial DNA in different ways. Familial DNA testing involves three DNA profiles: the profile found at the crime scene; a relative’s profile already stored in CODIS; and the profile of the true suspect.<sup>165</sup> Therefore, the

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156. U.S. CONST. amend. IV (“The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause . . . describing the place to be searched, and the persons or things to be seized.”).

157. See, e.g., *Kyllo v. United States*, 533 U.S. 27, 34 (2001) (“[O]btaining by sense-enhancing technology any information regarding the interior of the home that could not otherwise have been obtained without physical ‘intrusion into a constitutionally protected area’ constitutes a search . . . .” (quoting *Silverman v. United States*, 365 U.S. 505, 512 (1961) (internal citation omitted)); *Ferguson v. City of Charleston*, 532 U.S. 67, 86 (2001) (holding that testing urine samples for the presence of drugs was a “search” under the Fourth Amendment).

158. 389 U.S. 347 (1967).

159. *Id.* at 361 (Harlan, J., concurring) (comparing a home, where there is a legitimate and recognized expectation of privacy, to a conversation in public, where there is not).

160. *California v. Ciraolo*, 476 U.S. 207, 211 (1986).

161. 486 U.S. 35 (1988).

162. *Id.* at 41. Police officers asked a trash collector to deliver a suspect’s garbage to the police department based on reports of drug dealing out of the residence. *Id.* at 37. “The officer searched through the rubbish and found items indicative of narcotics use.” *Id.* at 37–38.

163. *Id.* at 40.

164. *Id.* at 40–41.

165. See, e.g., Nakashima, *supra* note 14, at A5, A9 (explaining that the BTK killer was caught by comparing DNA collected at the scenes of various crimes, for

manner in which each DNA sample is obtained is a critical component of Fourth Amendment analysis, as the expectation of privacy is a fact-specific examination.

For instance, while investigating the Grim Sleeper serial killer in Los Angeles, investigators made use of garbage discarded by the suspect, Lonnie Franklin Jr.<sup>166</sup> “According to police, a DNA sample taken from his son in an unrelated case was found to bear a close resemblance to DNA found on the victims . . . . [D]etectives then used a discarded cup with Franklin’s DNA to make the link,”<sup>167</sup> verifying the match with a piece of pizza Franklin threw away.<sup>168</sup> The suspect did not have a constitutionally acceptable expectation of privacy for either item because he discarded them in a public trash can, so collection and analysis were acceptable within the Fourth Amendment guidelines expressed in *Greenwood*.<sup>169</sup>

As demonstrated, “[c]onstitutional law offers virtually no protection to suspects who are targeted for their abandoned DNA . . . . [T]he Fourth Amendment focuses more on the physical boundaries of persons and places than it does on the quantity of information that may be found within them.”<sup>170</sup> In other words, Franklin’s son had a diminished expectation of privacy in keeping with other more conventional uses of CODIS.<sup>171</sup> The suspect, in turn, had no expectation of privacy because he disposed of waste that just happened to contain a sample of his DNA, like in *California v. Greenwood*.<sup>172</sup> Franklin had discarded his genetic material into a garbage can “for the express purpose of conveying it to a third party . . . who might himself have sorted through

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which the BTK killer claimed credit, to genetic material collected from the suspect’s daughter).

166. Rebecca Hall, “*Grim Sleeper*” Suspect Arrested at Least 15 Times, KTLA.COM (July 10, 2010), <http://www.ktla.com/news/landing/ktla-grim-sleeper-arrest,0,4886952,full.story>.

167. *Id.*

168. Naimah Jabali-Nash, “*Grim Sleeper*” Suspect Lonnie Franklin, Jr. Pleads Not Guilty, CBS NEWS (Aug. 23, 2010), [http://www.cbsnews.com/8301-504083\\_162-20014446-504083.html](http://www.cbsnews.com/8301-504083_162-20014446-504083.html).

169. See *supra* note 162 and accompanying text.

170. Elizabeth E. Joh, *Reclaiming “Abandoned” DNA: The Fourth Amendment and Genetic Privacy*, 100 NW. U. L. REV. 857, 863 (2006).

171. See *Rise v. Oregon*, 59 F.3d 1556, 1560 (9th Cir. 1995) (“[Previously convicted individuals] do not have the same expectations of privacy in their identifying genetic information that ‘free persons’ have. Once a person is convicted of one of the felonies included as predicate offenses . . . his identity has become a matter of state interest and he has lost any legitimate expectation of privacy . . .”).

172. 486 U.S. 35, 35 (1988).

respondents' trash or permitted others . . . to do so."<sup>173</sup> Furthermore, he discarded a half-eaten piece of pizza, presumably in a public trash receptacle.<sup>174</sup> "[W]here suspects 'knowingly expose' items to public view, the Court has held that collection of such evidence by the police falls outside the Fourth Amendment's protections."<sup>175</sup>

Familial DNA testing also survives constitutional challenges based on the notion of "suspicionless searches."<sup>176</sup> In *City of Indianapolis v. Edmond*,<sup>177</sup> the Supreme Court ruled that six drug interdiction roadblocks established by the Indianapolis Police Department to "detect ordinary criminal wrongdoing" violated the petitioner's Fourth Amendment rights.<sup>178</sup> There is a recognized "general rule that a seizure must be accompanied by some measure of individualized suspicion," and therefore a "general interest in crime control" is not a valid justification for establishing an interdiction checkpoint.<sup>179</sup> Checkpoints can be instituted for specialized purposes, but not for the apprehension of unknown individuals without specified suspicions.<sup>180</sup>

This restriction precisely exemplifies the value that familial DNA testing holds for targeted and smart police work. There is nothing "suspicionless" about an investigative lead born of a familial DNA search. Instead, this information bears a more substantive basis for suspicion than a traffic checkpoint that makes use of generalized suspicion to control the border and roadway safety. The Supreme Court in *Terry v. Ohio*<sup>181</sup> held that "in justifying the particular intrusion the police officer must be able to point to specific and articulable facts which, taken together with rational inferences from those facts, reasonably warrant that intrusion."<sup>182</sup> If there is a familial DNA match, the chances are

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173. *Greenwood*, 486 U.S. at 40.

174. *Jabali-Nash*, *supra* note 168.

175. *Joh*, *supra* note 170, at 863 (citing *Katz v. United States*, 389 U.S. 347, 361 (1967) (Harlan, J., concurring)).

176. *See City of Indianapolis v. Edmond*, 531 U.S. 32, 37 (2000).

177. *Id.*

178. *Id.* at 41–42. Indianapolis Police established roadblocks that would indiscriminately stop large numbers of vehicles without any specified suspicion. *Id.* at 41.

179. *Id.* (quoting *Delaware v. Prouse*, 440 U.S. 648, 659 n.18 (1979)).

180. *Id.* at 41 (listing border control and roadway safety as sufficiently specialized purposes).

181. 392 U.S. 1 (1967).

182. *Id.* at 21. An objective standard must be used to evaluate the reasonableness of a search or seizure, specifically whether "the facts available to the officer at the moment of the seizure or the search 'warrant a man of reasonable caution in the belief that the action taken was appropriate.'" *Id.* at 21–22.

very strong that a first-degree relative of the DNA profile donor will provide an exact match to the DNA sample.<sup>183</sup> Investigators can then further narrow that already-small group down by using information about geographic proximity, age, general health, and other factors before any suspects are actively pursued.<sup>184</sup> Therefore, cases based on familial DNA leads hold a strong likelihood of constitutionally endorsed suspicion.

The unconstitutional antithesis of a familial search is a "DNA dragnet," which is almost entirely void of individualized suspicion.<sup>185</sup> "A DNA dragnet is a police technique in which people who fit a broad description of the perpetrator based on witness accounts or, in some cases, live or work near the crime scene are asked to provide DNA samples to investigators."<sup>186</sup> DNA profiles from those individuals are then compared to forensic profiles recovered from crime scene evidence.<sup>187</sup> A suspect's lack of cooperation and often his or her unwillingness to volunteer a DNA sample become a cause for suspicion.<sup>188</sup> This process provides an illustrative foil for familial DNA testing techniques, in which a narrow group of closely related suspects is identified, and then carefully whittled down to leave only plausible suspects under police suspicion.<sup>189</sup>

It is clear that familial DNA testing raises constitutional issues. The technique lies on a sturdy constitutional foundation, and the legality of familial DNA testing will likely be confirmed in the course of inevitable legal challenges. Within the confines of the federal Constitution, the states should decide how best to use this emerging technology for their own criminal justice needs.

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183. See Bieber et al., *supra* note 10, at 1315 (noting that familial DNA testing is useful in the detection of "potential suspects who are the parents, children, or siblings of those whose profiles are in forensic databases").

184. See Maura Dolan, *A New Tack in DNA Search*, L.A. TIMES, July 10, 2010, at A1 (describing how investigators examined birth records and geographic data to identify the offender's relative before providing the information to the police department).

185. Kevin Bersett, *Ex-Suspect Twice Cleared of Rape Demands Return of DNA Sample*, NEW STANDARD (Dec. 15, 2004), <http://newstandardnews.net/content/index.cfm/items/1322>.

186. *Id.*

187. *Id.*

188. Glynn Wilson, *In Louisiana, Debate Over a DNA Dragnet*, CHRISTIAN SCI. MONITOR, Feb. 21, 2003, at 3, available at <http://www.csmonitor.com/2003/0221/p03s01-usju.html> ("In light of such cooperation, those who hesitate . . . draw swift notice.").

189. See *id.* (describing a case in which police tested nearly 1000 suspects for a DNA match and cleared almost 800 suspects).



### III. Reserved to the States: Implementing Familial DNA Searches at the State Level

Though familial DNA searches are constitutional at the federal level, the technique's use nevertheless represents a marked expansion of existing DNA databases. As a result, its implementation is best left to the states, which are free to allow, prevent, or restrict the use of familial DNA techniques within the confines of federal and state constitutions. In doing so, state legislatures can more accurately gauge the differing effects of this expansion on local African American populations and provide additional safeguards as needed.<sup>190</sup> These safeguards can be as simple as requiring the prompt expungement of an acquitted or exonerated individual's DNA profile or can go as far as a statewide ban on familial DNA searches if a legislature anticipates the likelihood of racial impropriety. States should control this technology for themselves.

No matter what states decide, some federal cooperation will be necessary. Because familial DNA testing requires use of CODIS in order to implement a search,<sup>191</sup> it is necessary for Congress and the FBI to clear the way for states that wish to embrace the emerging technique. Currently, the FBI will not allow states to use the national database to conduct familial DNA searches.<sup>192</sup> The FBI remains bureaucratically uneasy about the familial search process. Thomas Callaghan, the head of CODIS, described the Bureau's apprehension in utilizing advanced techniques without an explicit legislative endorsement, explaining that "[t]he FBI would be more comfortable with congressional authorization to conduct familial searches . . . ."<sup>193</sup>

Congressional approval of familial searches may now be in the offing as a necessary step to implement use at the state level. During the 111th Congress, Congressman Adam Schiff introduced the Utilizing DNA Technology to Solve Cold Cases Act.<sup>194</sup> The bill would allow the FBI to "conduct familial searches for DNA samples collected from crime scenes in Federal investigations," allow state law enforcement agencies to request familial DNA

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190. See *supra* Part I.C.

191. *CODIS Fact Sheet*, *supra* note 27.

192. Frank Green, *Calif. Congressman Wants FBI to Use Familial DNA Searches*, RICH. TIMES-DISPATCH, Aug. 5, 2010, at B2 ("The FBI does not perform the searches, but it does not stop states from doing so, provided they use their own DNA database.").

193. Nakashima, *supra* note 14, at A9.

194. Utilizing DNA Technology to Solve Cold Cases Act, H.R. 6011, 111th Cong. (2010).

searches from the FBI, and provide for the protection of privacy interests related to these advanced searches.<sup>195</sup> The statute defines a "familial match" as "a match of at least 1 shared allele at 15 loci between a DNA profile in the offender index and a DNA sample collected at a crime scene" or "any other genetic association the Attorney General determines is sufficient."<sup>196</sup> The bill also proposes a framework to restrict the use of familial searches.<sup>197</sup> This framework would require law enforcement officials to first attempt conventional search techniques, and would apply only to murder, voluntary manslaughter, a sexual offense committed against a minor, a sex crime punishable by imprisonment for more than a year, or an attempt to commit any of these offenses.<sup>198</sup>

The statutory language would allow state and federal law enforcement agencies to effectively use this emerging technology only under serious circumstances that would warrant the extensive search.<sup>199</sup> It would also allow states to implement additional safeguards.<sup>200</sup> Congressman Schiff's proposal provides a detailed and effective framework within which agencies would still be free to make use of familial DNA techniques.<sup>201</sup> The act would safeguard the constitutional rights of individuals with DNA profiles contained in CODIS, keeping CODIS practices well within rights protected by the Fourteenth and Fourth Amendments. Though Congress has not voted on this bill, and the likelihood of its reintroduction remains unclear, this bill should be passed so that states will be free to use familial DNA searches without the complications of a tentative federal bureaucracy and indeterminate constitutional challenges.

Several states have already taken steps to implement the use of familial DNA testing. Colorado has led the charge into this genetic frontier.<sup>202</sup> Beginning in 2005, Denver District Attorney Mitchell Morrissey took note of DNA profiles that closely resembled, but did not match, profiles stored in the state's database.<sup>203</sup> He soon convinced a hesitant FBI to adopt "an interim policy that permitted states to pursue partial matches that

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195. *Id.* § 2(a)(1)(A).

196. *Id.* § 2(d)(2).

197. *Id.* § 2(a)(2).

198. *Id.*

199. *See id.*

200. *See id.* § 2(a)(3) (requiring state law enforcement agencies to establish their own criteria and procedures to govern familial searches).

201. *See id.* § 2(a)(2).

202. *See Dolan & Felch, supra* note 93.

203. *Id.*

turned up during routine database searches,” enabling Morrissey to pursue collaboration between states.<sup>204</sup> Today, Colorado conducts familial DNA searches and has offered to share the state’s familial DNA search software with other states willing to collaborate.<sup>205</sup> Several states have already had highly publicized successes using the software.<sup>206</sup> California’s use of familial DNA testing, for example, brought the decades-long hunt for the Grim Sleeper serial killer to an end in 2010.<sup>207</sup> Los Angeles’s African American community breathed a collective sigh of relief, as all known victims were African American.<sup>208</sup>

In addition to providing widespread positive press for the technique, California’s probe into the “Grim Sleeper” killings demonstrates the additional precautions that states may take to ensure the appropriate use of familial DNA searches. In 2008, the California Department of Justice Bureau of Forensic Services issued Information Bulletin 2008-BFS-01, which provides for the release of the name of an offender “who is not the source of the biological material from an unsolved case” only under specific circumstances.<sup>209</sup> For example, if two profiles share at least fifteen alleles, the related offender’s name may be released in accordance with state regulations.<sup>210</sup> Of special significance is the California

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204. *Id.*

205. See Frank Green, *Familial DNA Hunt Sought in Rape Case*, RICH. TIMES-DISPATCH, Aug. 4, 2010, at B1 (“Morrissey said Denver’s software is available to any jurisdiction willing to comply with appropriate protocols and precautions.”); Chelyen Davis, *State Considers Using Familial DNA Searches*, FREDERICKSBURG.COM (Nov. 16, 2010), <http://fredericksburg.com/News/FLS/2010/112010/11162010/588494> (“According to Lisa Schiermeier-Wood of the Virginia Department of Forensic Science, familial DNA searches could cost about \$165,000 in the first year, of which \$100,000 would be for software and training. However, the district attorney for Denver has offered Virginia, for free, the familial DNA software his office developed.”).

206. See Dolan & Felch, *supra* note 93, at A1.

207. See *supra* notes 166–168 and accompanying text.

208. Hector Becerra & Scott Gold, *‘Everybody Knew Lonnie,’* L.A. TIMES, July 9, 2010, at A14 (“All of the victims Franklin has been charged with killing were young African American women . . .”).

209. Information Bulletin from Lance Gima, Chief, Bureau of Forensic Serv., to All California Law Enforcement Agencies and District Attorneys Offices, on DNA Partial Match (Crime Scene DNA Profile to Offender) Policy 2 (2008), *available at* [http://ag.ca.gov/cms\\_attachments/press/pdfs/n1548\\_08-bfs-01.pdf](http://ag.ca.gov/cms_attachments/press/pdfs/n1548_08-bfs-01.pdf).

210. *Id.* State regulations require, among other things, that a forensic profile be a “single-source profile,” that “all investigative leads have been exhausted” and the case remains unsolved. *Id.* Also, the investigating agency must commit to continue the investigation if the name is released, review non-forensic information to determine the viability of the familial DNA lead, and get approval of a California Department of Justice committee to release of the offender’s identifying information. *Id.*

Department of Justice's committee review process, which made the American Civil Liberties Union (ACLU) "more comfortable" with the familial DNA search process.<sup>211</sup> The evaluation process is consequently assigned to a law enforcement body.

Most importantly, the process is documented, minimizing the chances that racial considerations play any role behind the closed doors of a DNA laboratory. ACLU of Southern California staff attorney Peter Bibring explained, "[f]rom our perspective, if you are going to use familial DNA searching, this is the kind of case you should use it for, and the kind of precautions they took in this case are the kind that should be taken."<sup>212</sup> In light of recent high-profile successes using the technique, the director of the ACLU of Virginia concedes that "[l]ike nearly every advance in crime-solving technology, this one will surely catch on."<sup>213</sup> The manner in which California and Colorado have implemented familial DNA testing appears to effectively harness the potential criminal justice benefits of the technique, while safeguarding citizens against potential misuse.

Other states continue to debate implementation of familial searches. Virginia, a state where an estimated twenty percent of the population is African American, is weighing the benefits of expanding its DNA database against the possible costs to civil liberties.<sup>214</sup> In August 2007, the Virginia Scientific Advisory Committee's Subcommittee on Familial Searches met to discuss acceptable rates for false positives using the technique, as well as to determine "the size of the pool of reasonable, alternative suspects to those who are identified by a database search."<sup>215</sup> Though state legislators have shown interest in allowing the use of these searches to be "case-driven" by investigators in very serious crimes, rather than left to the discretion of database

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211. Dolan, *supra* note 184, at A1.

212. *Id.* But see Peter Bibring, "Grim Sleeper" Case Doesn't Justify Expanding the Reach of DNA Databases, DAILY KOS (July 15, 2010, 12:27 PM EDT), <http://www.dailykos.com/story/2010/07/15/884569/-Grim-Sleeper-Case-Doesnt-Justify-Expanding-the-Reach-of-DNA-Databases->, in which Bibring abandons his support of California Department of Justice processes and criticizes familial DNA testing as unjustified.

213. Frank Green, *Use of Familial DNA Searches in Va. Debated*, RICH. TIMES-DISPATCH, July 18, 2010, at A1.

214. *Id.* ("Asked if there were plans to pursue familial DNA searches, Peter Marone, director of the Virginia Department of Forensic Science, said, 'This is much more than a scientific issue.'").

215. VA. SCIENTIFIC ADVISORY COMM.'S SUBCOMM. ON FAMILIAL SEARCHES, SUMMARY REPORT (2007), available at [http://www.denverda.org/DNA\\_Documents/Familial\\_DNA/subcommitteeertpt.pdf](http://www.denverda.org/DNA_Documents/Familial_DNA/subcommitteeertpt.pdf).

administrators,<sup>216</sup> a healthy debate continues in Virginia<sup>217</sup> and elsewhere.<sup>218</sup> There is little indication, however, that concerns about race have played a significant role in any of these conversations. Because familial DNA testing does not violate the Fourteenth and Fourth Amendments, states may embrace additional restrictions in order to provide their citizens with supplementary safeguards if their electorates so desire.

## Conclusion

Juan Rivera still waits in prison, and an orphaned DNA sample still waits for its match.<sup>219</sup> Familial DNA testing is a valuable tool for law enforcement officials, and its use is likely to expand in coming years. The technique makes use of the FBI's extensive CODIS database by analyzing genetic similarities between relatives in order to identify suspects where other investigative leads have fallen short. While this expansion may exacerbate the over-representation of African American DNA profiles in the CODIS system, the technique is likely to survive constitutional challenges. Familial DNA testing is constitutional under the Fourteenth Amendment because no "racially discriminatory purpose" is present.<sup>220</sup> Likewise, the technique is permissible under the Fourth Amendment, as there is no expectation of privacy in abandoned genetic material,<sup>221</sup> and the result of a familial search provides investigators with more probable cause than is present from a conventional lead.<sup>222</sup> However, it is clear from recent breakthroughs in decades-old murder cases, as well as the resulting apprehension of several serial killers, that the benefits of responsible familial DNA techniques far outweigh any disproportionate effects on the African American community. In the end, it will fall to the states to decide how comfortable they are with familial DNA testing.

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216. Green, *supra* note 213, at A1.

217. Barbara Goldberg, *Virginia May Nab Serial Rapist Through Blood Relative DNA*, ABC NEWS (Aug. 9, 2010), <http://abcnews.go.com/News/TheLaw/familial-dna-expose-east-coast-rapist/story?id=11334748> ("The Virginia Association of Commonwealth's Attorneys . . . asked the state's Department of Forensic Science to use familial DNA to crack the case of the East Coast rapist . . . [Prosecutors also asked] the Virginia General Assembly to approve any legislation necessary to permit the forensic laboratory to conduct familial searches.").

218. Maryland and the District of Columbia have passed legislation banning the use of familial DNA searches. Davis, *supra* note 205.

219. Interview with Juan Rivera and Jane Raley, *supra* note 1.

220. *Washington v. Davis*, 426 U.S. 229, 240 (1976).

221. *Joh*, *supra* note 170, at 863.

222. *See Terry v. Ohio*, 392 U.S. 1, 21–23 (1968).

Racial issues must be a part of this conversation, and conventional DNA safeguards against consideration of race by law enforcement must be maintained in the familial DNA context. But one must never forget that DNA is a proxy for life, and, in Juan Rivera's case, a life hangs in the balance.