Case No. S223698

IN THE SUPREME COURT
OF THE STATE OF CALIFORNIA

THE PEOPLE OF THE STATE OF CALIFORNIA,

Plaintiff and Respondent,

v.

MARK BUZA,

Defendant and Appellant,

AFTER A DECISION BY THE COURT OF APPEAL
FIRST APPELLATE DISTRICT, DIVISION TWO, CASE NO. A125542
FILED AUGUST 31, 2011
SAN FRANCISCO COUNTY SUPERIOR COURT CASE NO. 207818
THE HONORABLE CAROL YAGGY, JUDGE

APPLICATION OF THE ELECTRONIC FRONTIER FOUNDATION, THE NATIONAL ASSOCIATION OF CRIMINAL DEFENSE LAWYERS, THE MARYLAND PUBLIC DEFENDER, AND INTERESTED LEGAL SCHOLARS FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF AND *AMICUS* BRIEF IN SUPPORT OF DEFENDANT AND APPELLANT MARK BUZA

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APPLICATION OF THE ELECTRONIC FRONTIER FOUNDATION, NATIONAL ASSOCIATION OF CRIMINAL DEFENSE LAWYERS, MARYLAND PUBLIC DEFENDER, AND INTERESTED LEGAL SCHOLARS FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF

Pursuant to California Rule of Court 8.520(f), the Electronic Frontier Foundation ("EFF") respectfully requests leave to file a brief *amicus curiae* on behalf of itself, the National Association of Criminal Defense Lawyers, the Maryland Public Defender, and law professors Jessica Gabel Cino, Elizabeth Joh, Erin Murphy, and Andrea Roth in support of Defendant/Respondent Mark Buza.[1]

EFF is a San Francisco-based, donor-supported, nonprofit civil liberties organization working to protect and promote fundamental liberties in the digital world. Through direct advocacy, impact litigation, and technological innovation, EFF's team of attorneys, activists, and technologists encourage and challenge industry, government, and courts to support privacy, civil liberties, free expression, and transparency in the information society.

EFF has served as counsel or *amicus curiae* in numerous cases involving the intersection of privacy and technology, including *Riley v. California* (2014) 134 S.Ct. 2473; *United States v. Jones* (2012) 132 S.Ct. 945, *National Aeronautics and Space Administration v. Nelson* (2011) 131 S.Ct. 746, and *City of Ontario v. Quon* (2010) 130 S.Ct. 2619. EFF has also served as *amicus* in cases considering the constitutionality of

[1] No party's counsel authored this brief in whole or in part. Neither any party nor any party's counsel contributed money that was intended to fund preparing or submitting this brief. No person other than *amicus* EFF contributed money intended to fund preparing or submitting this brief.

DNA testing of pretrial arrestees. See *People v. Buza* (2011) 197 Cal.App.4th 1424; *Raynor v. Maryland* (2015) 135 S.Ct. 1509 (cert. den.); *Maryland v. King* (2013) 133 S.Ct. 1958; *United States v. Mitchell* (3d Cir. 2011) 652 F.3d 387; *United States v. Pool* (9th Cir. 2010) 621 F.3d 1213 (vacated (9th Cir. 2011) 659 F.3d 761); *Haskell v. Harris* (9th Cir. 2012) 669 F.3d 1049 (*amicus* brief in support of rehearing en banc).

The National Association of Criminal Defense Lawyers (NACDL) is a nonprofit voluntary professional bar association working on behalf of criminal defense attorneys to promote justice and due process for those accused of crime or misconduct. NACDL was founded in 1958. It has a nationwide membership of approximately 9,200 and up to 40,000 including affiliates' membership. NACDL's members include private criminal defense lawyers, public defenders, military defense counsel, law professors, and judges. NACDL is the only nationwide professional bar association for public defenders and private criminal defense lawyers. The American Bar Association recognizes NACDL as an affiliated organization and awards it representation in the ABA House of Delegates. NACDL is dedicated to advancing the proper, efficient, and just administration of justice and files numerous *amicus* briefs each year in federal and state courts across the nation, addressing issues of broad importance to criminal defendants, criminal defense lawyers, and the criminal justice system as a whole, including in cases involving privacy and DNA testing and collection, such as *Maryland v. King* in the United States Supreme Court.

The Maryland Public Defender is an independent state agency created by the Maryland General Assembly in 1971. The mission of the Maryland Public Defender is to ensure enforcement of the right to effective assistance of counsel for eligible clients in

state court. With over 900 employees (570 attorneys) across 52 offices located in twelve districts and seven specialized divisions, the Public Defender is the largest legal services organization in the state, providing representation in over 230,000 matters a year to more than 70,000 clients. Attorneys employed by the Public Defender regularly represent clients who are subject to the state's ever-widening DNA collection schemes. The Public Defender has litigated issues surrounding the government's DNA collection schemes in *Varriale v. Maryland*, 119 A.3d 824 (Md. 2015) (volunteered DNA sample for one purpose used for other purposes) cert. pending; *Maryland v. King*, 133 S.Ct. 1958 (2013) (compelled collection of DNA from person charged with serious crime); *Raynor v. State*, 99 A.3d 753 (Md. 2014) (amicus curie) (police collection of involuntarily shed DNA sample); *Corbin v. Maryland*, 52 A.3d 946 (Md. 2012) (collection of probationer's saliva sample from straw used in breath test to monitor alcohol use); *Williamson v. Maryland*, 993 A.2d 626 (Md. 2010) (collection of DNA sample from discarded paper cup); and *Maryland v. Raines*, 857 A.2d 19 (2004) (compelled collection of convicted offender DNA).

The Public Defender is particularly concerned about the racial justice implications of a DNA collection scheme that compels a person to submit to DNA sampling before he or she is presented to a judicial officer. It is the experience of the Public Defender that when the police have great leeway to subject individuals to mandatory DNA sampling, it will be our clients—frequently judged to be the "usual suspects"—who will suffer the greatest harm to their dignitary and privacy interests. In the first three years that Maryland began collecting data about racial demographics of arrestees from whom DNA

samples were seized, minorities have consistently represented approximately 60% of the total number of individuals subject to the compelled collection of DNA upon being charged. See *Maryland State Police Annual Statewide DNA Database Report* (2011) (http://tinyurl.com/marylandreport). A practice that requires DNA sampling at the point of arrest will amplify the disproportionate impact of a collection scheme on minorities and, through familial searching techniques, their unsuspecting relatives, increasing the likelihood that innocent people of color will experience unwarranted law enforcement surveillance and societal stigmatization in the future. Maryland's history of DNA collection practices underscores the need for this Court to closely scrutinize the implications of a decision to constitutionally authorize DNA sampling upon arrest.

The Public Defender has a strong interest in the issues presented in this case.

Jessica Gabel Cino is a law professor at Georgia State University College of Law. Professor Cino teaches and writes about the intersection of law and science, including ethical issues surrounding forensic DNA evidence and DNA databases. She has been invited to give national and international presentations on forensic DNA and has written several law review articles on the topic: *Shadow Dwellers: The Under-regulated World of Local DNA Databanks*, 69 N.Y.U. Ann. Survey of Am. L.Rev. 3 (Winter 2015) (co-author); *Indecent Exposure: Genes are More than a Brand Name Label in the DNA Database Debate*, 42 U. Balt. L. Rev. 561 (Spring 2013); and *Probable Cause from Probable Bonds, A Genetic Tattle Tale Based on Familial DNA*, 21 Hastings Women's L.J. 3 (Winter 2010). Professor Cino has no stake in the outcome of this case, but is

committed to ensuring that the law evolves in pace with technology so that constitutional, privacy, and ethical concerns are addressed proactively.

Elizabeth Joh is a Professor of Law at the U.C. Davis School of Law. Her research on policing, surveillance, and new technologies appears or is forthcoming in nationally recognized law reviews including the Stanford Law Review, the University of Pennsylvania Law Review Online, the Virginia Law Review Online, the Southern California Law Review, the Boston University Law Review, and the California Law Review. She has no stake in the outcome of this case, but is committed to ensuring that law enforcement interests in DNA evidence collection are carefully balanced against the protection of civil liberties.

Erin Murphy is a professor at NYU School of Law. Her research focuses on technology and forensic evidence in the criminal justice system. She is a nationally recognized expert in forensic DNA typing, and her work has been cited multiple times by the Supreme Court. Her new book, *Inside the Cell: The Dark Side of Forensic DNA* (Nation Books 2015) addresses scientific, statistical, and social policy issues related to forensic DNA typing. Murphy is co-editor of the Modern Scientific Evidence treatise, and presently serves as the Associate Reporter for the American Law Institute's project to revise Article 213 of the Model Penal Code. She has previously authored briefs amicus curiae in Supreme Court cases regarding forensic evidence, and consulted formally and informally on DNA litigation. She has no stake in the outcome of this case, but is committed to ensuring that the law make judgments regarding DNA collection and storage that accurately reflect the scientific and statistical implications of the technology.

Andrea Roth is an assistant professor of law at the University of California, Berkeley School of Law who teaches and writes about criminal law and forensic evidence. She serves on the Constitution Project's National Committee on DNA Collection. She has written several law review articles on the intersection of DNA and criminal law, criminal procedure, and evidence, including several articles about DNA databases, and one about the decision in *Maryland v. King*. She has no stake in the outcome of this case, but is committed to ensuring that the construction of DNA databases is equitable and rational in light of the goals of the criminal justice system.

For these reasons, *amici* respectfully request leave to file the attached brief.

DATED: November 13, 2015

Respectfully submitted,

ELECTRONIC FRONTIER FOUNDATION

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INTRODUCTION AND SUMMARY OF ARGUMENT

Our DNA contains our entire genetic makeup—private and intensely personal information that maps who we are, where we come from, and who we will be. DNA can be used to identify us in the narrow and proper sense of that word—"who is that?"—but it can also tell us where in the world our ancestors came from, who we are related to, our physical characteristics, and whether we are likely to get a host of genetically-determined diseases. Researchers have theorized DNA may also determine race, intelligence, criminality, sexual orientation, and even political ideology.[2]

Since 2009, California has collected DNA without a warrant from people merely arrested for a crime—people who are presumed innocent and therefore not that different from the lawyers arguing this case or the Justices deciding it. California argues DNA collection is necessary to "precisely" identify an arrestee, but DNA profiles are not actually used to verify the arrestee's identity. If they were, the collected sample would be immediately tested and instantly compared to the database of *known persons*, and then destroyed once the identity is confirmed. But that is not what the state does with the DNA it collects. Rather, the state collects DNA from persons at arrest, tests it at some point in the future, and then places it in a database where it is continuously searched in perpetuity against a database of unsolved crime. That is clearly an *investigative* objective, not an identification objective. The investigative nature of the objective is even more evident

[2] Erika Check Hayden, *Ethics: Taboo Genetics*, Nature (Oct. 2, 2013) http://www.nature.com/news/ethics-taboo-genetics-1.13858; Lizzie Buchen, *Biology and Ideology: The Anatomy of Politics*, Nature, Oct. 24, 2012, http://www.nature.com/news/biology-and-ideology-the-anatomy-of-politics-1.11645.

given the myriad rapid identification tools California already has at its disposal—and uses regularly—from fingerprints to palm prints to face recognition-capable photographs.

California also claims that DNA profiles contain no more data than a fingerprint, and therefore the arrestee's privacy interest is minimal. But DNA profiling requires the seizure of a DNA sample that contains the arrestee's entire genome. And as shown by the fact that California conducts "familial" searching on its offender database, a DNA profile alone can tell to whom a person is related and may also be able to tell, when combined with other publicly available data, whether a person is more or less likely to have a given trait or get a specific disease. The breadth of information obtained from a mere fingerprint is not remotely comparable to that in DNA.

Finally, California argues that mandating DNA collection from people arrested for felonies—including non-serious, non-violent felonies—is constitutional under both the Fourth Amendment and the California Constitution's parallel provision, Article I, Section 13. The state insists this Court should follow the Supreme Court's lead in *Maryland v. King* (2013) 133 S.Ct. 1958, and find that the privacy interests implicated by the collection, indefinite retention and repeated search of DNA are outweighed by the government's interest in "identifying" an arrestee. However, the sharp differences between California's and Maryland's statutes, the additional privacy protections guaranteed by the California Constitution, and the serious privacy and liberty interests implicated by DNA collection, counsel the opposite.

The Court of Appeal correctly recognized the limitations of the United States Supreme Court's analysis in *King* and declined to follow it in this case—both in its

analysis of California's DNA Act under the Fourth Amendment and under Article I, section 13 of the California Constitution. This Court should uphold the Court of Appeal's decision and put an end to the expansion of warrantless DNA collection.

ARGUMENT

I. *MARYLAND V. KING* DID NOT ESTABLISH A *PER SE* RULE AUTHORIZING WARRANTLESS COLLECTION OF DNA FROM ARRESTEES

A. California's Arrestee DNA Collection Law Violates the Fourth Amendment to the United States Constitution

The Court of Appeal correctly recognized that, even in light of the United States Supreme Court's opinion in *Maryland v. King*, California's Arrestee DNA collection law violates the Fourth Amendment. "[T]he ultimate touchstone of the Fourth Amendment is 'reasonableness." *Riley v. California* (2014) 134 S.Ct. 2473, 2482 (citation omitted). Where, as here, a search is ultimately undertaken to "discover evidence of criminal wrongdoing, . . . reasonableness generally requires the obtaining of a judicial warrant." *Ibid.* (quotations omitted). Given the dramatic differences between California's DNA collection statute and Maryland's and the increased impact those differences have on arrestees' privacy interests, California's statute fails to meet the Fourth Amendment's reasonableness requirement.

While the state appears to believe the Supreme Court in *King* carved out a Fourth Amendment exception for the warrantless collection of DNA from all arrestees, the Court did not. *King* only upheld such DNA collection under the specifics of Maryland's DNA collection law. *King* (2013) 133 S.Ct. at 1967, 1977-79 (discussing the particulars of

Maryland's statute and, in the context of that statute, balancing the arrestee's interests against the government's). As the Court of Appeal aptly recognized, given the sharp distinctions between Maryland's DNA collection statute and California's, it is questionable whether California's law meets the standards of the Fourth Amendment, even in light of *King*. *People v. Buza* (2014) 231 Cal.App.4th 1446, 1451 (review granted and opinion superseded, (Cal. 2015) 342 P.3d 415). The four main differences between the two statutes are shown in the table below.

Comparison of California and Maryland's Arrestee DNA Collection Statutes		
	California	**Maryland**
From whom?	All felony arrestees	Arrestees of serious, violent felonies
When collected and analyzed?	Upon arrest and before charging occurs[3]	After judicial finding of probable cause[4]
Expungement	Arrestee must petition for expungement	Automatic expungement / destruction of sample
Familial search[5]	No statutory or regulatory prohibition of familial search, and a practice of familial search performed on offender database	Familial search expressly prohibited by statute[6]

As, the majority recognized in *King*, Maryland limits its DNA collection to those arrested for a "serious offense." See *King*, 133 S.Ct. at 1965, (noting King's DNA was collected "[a]s part of a routine booking procedure for *serious* offenses" (emphasis

[3] Penal Code §§ 296.1(a)(1)(A); 296(a)(2)(C).
[4] Md. Pub. Saf. Code Ann. § 2–504(d)(2)(i).
[5] Discussed in detail *infra* Section 2.C.
[6] Md. Pub. Saf. Code Ann. §2-506(d).

added)); *id.* at 1977 (noting Maryland's statute applies to "serious" offenders). Maryland's statute only allows the collection of DNA from those arrested for specific felonies, including "crime[s] of violence, burglary, or an attempt to do either. See Md. Pub. Saf. Code Ann. § 2-504; Md. Crim. Law Code Ann. §14-101 (listing "crime[s] of violence").

However, California's law applies to all those arrested in the state for *any* felony. This distinction has real-world implications for privacy. Because Maryland's law is limited in scope, it impacted approximately 17,400 out of its total 245,505 arrests in 2013 (the most recent year for which there are data).[7] In contrast, according to the California Department of Justice, there were 411,929 felony arrests in California in 2013, all of which were DNA-eligible.[8] Even accounting for differences in the size of each state's population, California's law impacts many more people than Maryland's.[9] In fact,

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[7] Maryland's DNA collection law applies to arrests for "a crime of violence or an attempt to commit a crime of violence; or burglary or an attempt to commit burglary." Md. Pub. Saf. Code Ann. § 2-504(a)(3)(i)(1-2). Maryland's 2013 Uniform Crime Report estimates that arrests for "crime[s] of violence" amounted to approximately five percent, or 12,275 of the 245,505 total arrests for 2013. See *Crime in Maryland, 2013 Uniform Crime Report,* pp. 110-11*1*, http://goccp.maryland.gov/msac/documents/2013_Crime_in_Maryland_UCR.pdf. Although Maryland does not appear to track arrests for burglary, it does note that it cleared 16% or 5,102 of its 31,889 burglary cases in 2013. *Id.* at 201. By adding the number of cleared burglaries to the number of arrests for crimes of violence, one can estimate that Maryland had approximately 17,377 DNA-eligible arrests in 2013.

[8] Cal. DOJ Crime in California 2014, p. 23, Table 22 - FELONY ARRESTS, 2009-2014 https://oag.ca.gov/sites/all/files/agweb/pdfs/cjsc/publications/candd/cd14/cd14.pdf?.

[9] Maryland and California both began collecting DNA from arrestees in 2009. See Maryland DNA Legislation, *Maryland Governor's Office of Crime Control & Prevention*, http://goccp.maryland.gov/dna/legislation.php. The U.S. Census Bureau estimates that as of 2014, California's population was 38,802,500, and Maryland's population was

California is the largest contributor of arrestee DNA profiles to CODIS; the state has contributed 612,612 profiles out of just over 2 million nationwide as of September 2015.[10] In contrast, Maryland has submitted just 29,478.[11]

Comparison of Impact of Arrestee DNA Collection Laws		
	California	**Maryland**
Number of DNA-eligible arrests in 2013	411,929[12]	17,400[13]
Total number of arrestee profiles submitted to CODIS as of September 2015	612,612[14]	29,478[15]
Percentage of state population included in CODIS arrestee database[16]	1.58%	0.49%

Moreover, unlike Maryland, California neither requires a judicial finding of probable cause prior to DNA collection nor provides for automatic expungement of data and destruction of the DNA sample if a person is not charged with or convicted of the

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5,976,407. See http://quickfacts.census.gov/qfd/states/06000.html; http://quickfacts.census.gov/qfd/states/24000.html.

[10] FBI, "CODIS—NDIS Statistics" https://www.fbi.gov/about-us/lab/biometric-analysis/codis/ndis-statistics/#California.

[11] FBI, "CODIS—NDIS Statistics" https://www.fbi.gov/about-us/lab/biometric-analysis/codis/ndis-statistics/#Maryland. Maryland and California both began collecting DNA from arrestees in 2009. See Maryland DNA Legislation, *Maryland Governor's Office of Crime Control & Prevention*, http://goccp.maryland.gov/dna/legislation.php.

[12] See *supra* note 8.

[13] See *supra* note 7.

[14] See *supra* note 10.

[15] See *supra* note 11.

[16] See *supra* note 9.

crime for which he or she was arrested. As shown in the table below, the lack of automatic expungement results in almost no *actual* expungement of DNA.

Comparison of California and Maryland's Expungement Statistics		
	California	**Maryland**
Number of arrestee samples expunged	98 (out of 731,315)[17]	10,258 (out of 33,649)[18]
Percentage of arrestee samples expunged	.0134%	30.4853%
Percentage of arrestees never charged or convicted (likely expungement eligible) (2014)	31.1%[19]	Unknown, but likely close to the percentage of arrestee samples expunged
May DNA eligible for expungement be used in future investigations?	YES "Any identification, warrant, probable cause to arrest, or arrest based upon a data bank or database match is not invalidated due to a failure to expunge	NO DNA eligible for expungement is not admissible in any proceeding and may not form the basis for probable cause, even if it hasn't yet been expunged or

[17] Elizabeth E. Joh, *The Myth of Arrestee DNA Expungement*, __U.Pa.L.Rev.Online__, 6 (forthcoming 2015).

[18] Julie Samuels, et al., *Collecting DNA at Arrest: Policies, Practices & Implications*, The Urban Institute, p. 67 (May 2013) http://www.urban.org/research/publication/collecting-dna-arrest-policies-practices-and-implications/view/full_report.

[19] This number is approximate. The California DOJ states that in 2014, 68.9% of arrests resulted in conviction. Of the remaining arrestees: 3.2% were released by law enforcement; 15.3% were not prosecuted; 12.4% had their cases dismissed; and 0.1% were acquitted. Office of the Attorney General, Table 38A: Dispositions of Arrests, 2009-2014, *Crime in California* 2014, 50, available at https://oag.ca.gov/sites/all/files/agweb/pdfs/cjsc/publications/candd/cd14/cd14.pdf?; See also Samuels, *Collecting DNA at Arrest*, p.8 (estimating that "one in two felony arrests will not result in a felony conviction").

	or a delay in expunging records."[20]	destroyed.[21]

In California, nearly a third of felony arrestees are determined after their arrest to be innocent in the eyes of the law of the crime for which they were arrested. In 2014 alone, 10,227 arrests resulted in law enforcement releases.[22] And yet, only *98 people* between 2009 and 2014—an average of 16 people per year—have been able to successfully have their DNA removed from the state's database.[23] This means that likely well over 200,000 former arrestees who are eligible for expungement in California still have their DNA stored in the database. Given that California will not invalidate "[a]ny identification, warrant, probable cause to arrest, or arrest based upon a data bank or database match . . . due to a failure to expunge or a delay in expunging records," Penal Code § 299(d), there is also no incentive for the government to refrain from searching this data.

The table below demonstrates why only 98 people in 6 years have been able to have their DNA data and sample expunged. The lack of automatic expungement, combined with California's onerous and seemingly capricious process for obtaining expungement places significant burdens on arrestees and would dissuade all but the most persistent person from even attempting to get his or her data removed from the system.

[20] Penal Code § 299(d).
[21] Md. Pub. Saf. Code Ann. § 2-511(f).
[22] See *supra* note 8.
[23] Joh, *supra* note 16, at 8.

And even if that persistent person were to make it all the way through the process, the reviewing court has discretion to deny the request, and that decision is not appealable.[24]

Comparison of California and Maryland's Expungement Processes		
	California	**Maryland**
Who bears the burden of initiating expungement process?	*Arrestee bears burden:* "a person who has no past or present qualifying offense, and for whom there otherwise is no legal basis for retaining the specimen or sample or searchable profile, ***may make a written request*** to have his or her specimen and sample destroyed and searchable database profile expunged."[25]	*State bears the burden:* DNA samples and records "***shall be destroyed or expunged automatically*** from the State DNA data base" if certain requirements are met.[26] Also, the state must notify the arrestee that expungement has occurred.[27]
Time Period for Expungement	No time period specified.[28]	Automatically within 60 days of arrestee being eligible for expungement.[29]
Expungement process	Former arrestee must send written request with proof of service to: 1. Trial court where arrest occurred 2. State DNA lab 3. Prosecuting attorney[30]	Automatic[34]

[24] *Ibid.*; Penal Code § 299(c)(1).
[25] Penal Code § 299(b).
[26] Md. Pub. Saf. Code Ann. § 2-511(a).
[27] Md. Pub. Saf. Code Ann. § 2-511(e).
[28] Penal Code § 299.
[29] Md. Pub. Saf. Code Ann. § 2-511(d).
[30] Penal Code § 299(c)(1).
[34] Md. Pub. Saf. Code Ann. § 2-511(a).

	At the expungement hearing, former arrestee must provide or show: 1. Written request for expungement 2. Letter from prosecution certifying basis of eligibility 3. Proof of written notice of request sent to prosecuting attorney and DNA lab 4. Court order verifying that 180 days have passed since the arrestee initiated the expungment process 5. No objection from prosecuting attorney or Cal DOJ[31] It also appears the California DOJ and the prosecuting attorney can object to expungement even if all underlying qualifications have been met.[32] The reviewing court has discretion to deny or grant, and that decision is not appealable.[33]	

The result of expungement policies like California's that place the burden on the former arrestee is that "the initial decision by the police to arrest that person turns out in most cases to lead to the permanent collection and retention of the arrestee's genetic information, regardless of whether charges are dismissed or never brought at all."[35] This proves the truth of Justice Scalia's insight that arrestee DNA collection statutes such as

[31] Penal Code § 299(c)(2) (2004).
[32] *Buza* 1231 Cal.App.4th at 1489.
[33] *Ibid.*; Penal Code § 299(c)(1).
[35] Joh, *supra* note 16, at 8.

California's "manage[] to burden uniquely the sole group for whom the Fourth Amendment's protections ought to be most jealously guarded: people who are innocent of the State's accusations." *King*, 133 S.Ct. at 1989 (Scalia, J., dissenting).

As the Court of Appeal recognized, "the differences between the California and Maryland DNA laws significantly alter the weight of the governmental interests and privacy considerations to be balanced in determining constitutionality under the Fourth Amendment. *Buza* (2014) 231 Cal.App.4th 1446, 1464. Because California's law unreasonably burdens arrestees' privacy interests with little corresponding benefit to the government, especially compared to Maryland's law, it violates the Fourth Amendment.

B. The Court of Appeal Properly Recognized California's Constitutional Protection Against Unlawful Searches and Seizures Precludes the Warrantless Collection and Search of Arrestee DNA

As the Court of Appeal did, this Court may base its opinion solely on the California Constitution and need not reach the Fourth Amendment issues. Although this Court may look to Fourth Amendment case law to interpret parallel provisions in the state constitution, California's constitution is a "document of independent force," and article I, section 13 imposes a "more exacting standard." *People v. Brisendine* (1975) 13 Cal. 3d 528, 545, 549-50; Cal. Const., art. I, §24 ("Rights guaranteed by this Constitution are not dependent on those guaranteed by the United States Constitution"). In analyzing California's arrestee DNA collection law under the state constitution, this Court is therefore not bound by the Supreme Court's analysis in *King* and should not adopt it. Given the myriad problems with the Court's analysis in *King* and California's explicit

constitutional right to privacy, this Court should find the California Constitution independently protects arrestees from warrantless DNA collection.

1. King Failed to Recognize the Substantial Privacy Interest Arrestees Maintain in Their Genetic Material

As the Court of Appeal recognized, "the *King* majority's view of the purpose of DNA testing [is] thoroughly inapplicable to the DNA Act, and the court's view of the information exposed through DNA testing too dismissive of scientific knowledge and practical considerations." *Buza*, 231 Cal.App.4th at 1468. *King* failed to recognize both that there are multiple and repeated searches at issue in DNA collection and that arrestees maintain a substantial privacy interest in their genetic material, even after the initial cheek swab concludes.

In analogizing DNA collection to fingerprints, the Supreme Court in *King* focuses its analysis of the arrestee's privacy interest solely on what it described as a "gentle rub along the inside of the cheek" to collect the DNA sample, *King*, 133 S.Ct. at 1979, finding this minimal trespass failed to outweigh the state's interest in "identifying" the arrestee.[36] But as the Court of Appeal in this case and other judges have recognized, the later and separate searches involved in DNA collection pose the greater threats to privacy. See *Buza*, 231 Cal.App.4th at 1458 ("the second [search] occurs when the DNA sample is analyzed and a profile created for use in state and federal DNA databases. The latter search is the true focus of our analysis"); see also *King v. State* (Md. 2012) 42 A.3d

[36] See *King*, 133 S.Ct. 1987 (Scalia, J. dissenting)(noting, "[t]he Court does not actually say whether it believes that taking a person's fingerprints is a Fourth Amendment search, and our cases provide no ready answer to that question).

549, 575; *United States v. Mitchell* (3d Cir. 2011) 652 F.3d 387, 406-7 ("The second 'search' at issue is, of course, the processing of the DNA sample and creation of the DNA profile"); *United States v. Kincade* (9th Cir. 2004) 379 F.3d 813, 873 (Kozinski, J., dissenting) ("it is important to recognize that the Fourth Amendment intrusion here is not primarily the taking of the blood, but seizure of the DNA fingerprint and its inclusion in a searchable database."). By focusing solely on the cheek swab, *King's* analysis excludes any consideration of privacy interests implicated by the later searches, including the arrestee's interests in the DNA sample and profile and his or her family members' privacy interests in their own genetic information.[37]

"The overriding function of the Fourth Amendment is to protect personal privacy and dignity against unwarranted intrusion by the State." *Schmerber v. California* (1966) 384 U.S. 757, 767. This Court and the United States Supreme Court have repeatedly "recognized a person's right, under due process and search and seizure protections provided by both state and federal Constitutions, to be free from unwarranted bodily intrusions by agents of government." *People v. Melton* (1988) 44 Cal. 3d 713, 737 (citing cases). A Fourth Amendment intrusion is measured not solely by the physical trespass of the cheek swab or inaccurate analogies to primitive techniques like fingerprinting, but by the impact of the government's entrance into what society considers a private sphere. See *Katz v. United States* (1967) 389 U.S. 347, 353 ("the Fourth Amendment protects people—and not simply 'areas'" and "cannot turn upon the presence or absence of a

[37] Discussed in detail *infra* Section 2.C.

physical intrusion into any given enclosure"); accord *People v. Mayberry* (1982) 31 Cal. 3d 335, 347. Further, as the Supreme Court noted in *Riley*, the quantity and quality of information revealed to the government has constitutional significance. See *Riley*, 134 S.Ct. at 2489 (because "[c]ell phones differ in both a quantitative and a qualitative sense from other objects that might be kept on an arrestee's person[,]" a warrantless search incident to arrest was prohibited). Once the initial DNA collection is disaggregated from the subsequent searches of an arrestees genetic material it becomes clear that DNA searches involve "intrusion into the widest spectrum of human privacy." *United States v. Pool* (9th Cir. 2010) 621 F.3d 1213, 1232 (Lucero, J., concurring) (opinion vacated, (9th Cir. 2011) 659 F.3d 761).

Without question, the state's initial physical intrusion to collect a DNA sample from Mr. Buza—in this case, the buccal swab—is both a search and a seizure. See *United States v. Dionisio* (1973) 410 U.S. 1, 8 (collection of blood from defendant involves both a search and seizure); *Skinner v. Ry. Labor Execs.' Ass'n* (1989) 489 U.S. 602, 616-17 (breath testing and urinalysis are searches); *Cupp v. Murphy* (1973) 412 U.S. 291, 295 (finger nail scrapings); *Schmerber v. California* (1966) 384 U.S. 757, 767-71 (blood); *People v. Robinson* (2010) 47 Cal. 4th 1104, 1119 (blood). The extraction of Mr. Buza's DNA profile from that sample is a second search. See *Skinner v. Railway Labor Executives' Ass'n* (1989) 489 U.S. 602, 616 (recognizing that the "ensuing chemical analysis of the sample to obtain physiological data" is also a search). Placing his DNA profile into a state and national database and running the profile through CODIS for "hits" is another search, and the same is true of every subsequent use of Mr. Buza's DNA

profile for "matching." See *Kyllo v. U.S.* (2001) 533 U.S. 27, 32 n.1 ("search" means "[t]o look over or through for the purpose of finding something; to explore." (quoting N. Webster, *An American Dictionary of the English Language* 66 (1828) (reprint 6th ed.1989)); see also *United States v. Kriesel* (9th Cir. 2007) 508 F.3d 941,956 (B. Fletcher, J., dissenting) ("the warrantless 'search' permitted by the 2004 DNA Act extends to repeated searches of his DNA whenever the government has some minimal investigative interest.") (citing *Kincade*, 379 F.3d at 873 (Kozinski, J., dissenting)).

Moreover, the seizure of the DNA sample necessarily requires the seizure of a person's entire genome, raising another set of Fourth Amendment concerns.[38] The Fourth Amendment was intended to prevent "general warrants"—"indiscriminate searches and seizures conducted by petty officials with unfettered discretion" without judicial review or individualized suspicion. *People v. McKay* (2002) 27 Cal.4th 601, 631; *Ashcroft v. al-Kidd* (2011) 131 S.Ct. 2074, 2084. As a result, search warrants must "particularly describe the things to be seized" to ensure that when it comes to "what is to be taken, nothing is left to the discretion of the officer executing the warrant." *Marron v. United States* (1927) 275 U.S. 192, 196.

But allowing the wholesale, warrantless seizure of a person's genome eviscerates the concept of particularity; it is in essence a "general search" of a person's genetic history. It is the equivalent of the government seizing and searching an entire computer, rummaging through all of its data—including data outside of the probable cause

[38] California retains this genetic data indefinitely. Penal Code § 299.5(b).

justification—to find one specific file. See, e.g. *United States v. Comprehensive Drug Testing, Inc*. (9th Cir. 2010) 621 F.3d 1162, 1177 (en banc) (per curiam) ("that over-seizing is an inherent part of the electronic search process . . . calls for greater vigilance on the part of judicial officers in striking the right balance between the government's interest in law enforcement and the right of individuals to be free from unreasonable searches and seizures."). Regardless of what the government does with the DNA sample and the limits it places on the sample's use,[39] all the highly personal data in it is in the government's possession, and outside the individual's control. See *Raynor*, 99 A.3d at 772 (Adkins, J., dissenting) (noting privacy also includes the "right of a person to control information about himself and intimate aspects of life").

By disaggregating the searches and seizures involved in DNA collection, it is clear, not only that DNA collection serves purely *investigatory* purposes and strays far beyond the government's stated need to "identify" the arrestee, but also that collection poses real threats to privacy beyond the initial cheek swab. The fact that *King* failed to recognize the substantial privacy interests arrestees have in their genetic material, combined with the California Constitution's greater protections for privacy and against unlawful searches and seizures, suggest this Court should not follow *King* in determining the constitutionality of California's DNA collection law.

[39] California's restrictions on accessing this data cannot cure an otherwise unconstitutional search and seizure. See *United States v.* Stevens (2010) 559 U.S. 460, 480 ("We would not uphold an unconstitutional statute merely because the Government promised to use it responsibly.").

2. Adopting the Supreme Court's Flawed Reasoning in King will have Unintended Consequences that Extend Far Beyond Collection of DNA from Arrestees

Two aspects of the Supreme Court's reasoning in *King* will have consequences for DNA collection outside of the arrestee context. First, as discussed above, in analyzing the arrestee's privacy interests, the Supreme Court equated a DNA profile with a fingerprint and failed to recognize the privacy impacts of either the seizure of the arrestee's DNA or the repeated secondary searches involved in DNA collection. As already shown by two subsequent cases in Maryland, this opens the door to DNA collection and search in any context in which a fingerprint is collected. Second, the Court took a broad view of what it means to "identify" someone, ultimately subsuming an "investigation" of the arrestee's possible past criminal behavior within the state's need to "identify" him. But including within "identification" information about an arrestee's potential "unknown violent past," *King*, 133 S.Ct. at 1974, fails to place meaningful limits on what the government may search for when it analyzes a DNA sample.

a. Failing to Recognize the Full Privacy Impact of DNA Collection in this Context Will Allow the Government to Collect a DNA Sample Whenever it May Currently Collect a Fingerprint

Focusing solely on the minimal intrusiveness of the initial cheek swab rather than much greater intrusion of the secondary searches—the extraction of a DNA profile, the comparison of that profile against the database and future profiles, and the retention of the DNA sample indefinitely—fails to place meaningful limits on a practice that could

one day impact all of us.[40] It not only opens the door to the government collecting DNA under any circumstances in which a fingerprint may already be collected but it could allow repeated searches of DNA collected without our knowledge or consent.

King's impact is becoming clear as states attempt to apply its analysis in contexts outside arrestee DNA collection. The Maryland Court of Appeals, the same state court that first heard the *King* case, grappled with this issue in two cases in the past year. See *Raynor v. State* (Md. 2014) 99 A.3d 753, and *Varriale v. State* (Md. 2015) 119 A.3d 824. The result of the Maryland court's analyses in these cases, as the dissenting judge noted in *Raynor*, is that "the State may collect any person's DNA, create a genetic profile, and add it to the CODIS database, all without implicating, let alone respecting, any constitutional protection." *Id.* at 768 (2014)(Adkins, J. dissenting).

In *Raynor*, the Maryland court addressed the constitutionality of collecting and profiling DNA inadvertently left behind by a person who was not under arrest and who refused to consent to DNA collection. Glenn Raynor agreed to an interview at a police station as part of a criminal investigation into a rape. The police did not have probable cause to arrest him, and he refused to provide a DNA sample. After he left the station, police swabbed the armrest of the chair where he had been sitting to collect his skin cells without his knowledge. The police then extracted a DNA profile from the cells and used

[40] See Erin Murphy, *License, Registration, Cheek Swab: DNA Testing and the Divided Court*, 127 Harv. L. Rev. 161, 178 (2013) ("if DNA collection is *also* okay because DNA is no more than a twenty-first century fingerprint that simply relates one aspect of 'identity,' then it is hard to read the Court's opinion as rejecting collection of DNA in any case where collection of fingerprints is presently allowed").

it to connect him to the crime. Relying heavily on *King's* analogy of a DNA profile to a fingerprint, the Maryland Court of Appeals determined the only question in the case was whether the extraction of a 13-loci CODIS DNA profile from the sample constituted a "search." As *King* had done, the court chose to ignore any privacy interest the defendant may have had in the sample itself. The court relied on the Supreme Court's explanation in *King* that the 'junk' DNA contained in the CODIS profile is used only for identification purposes, much like fingerprints, and therefore determined that Raynor "[did] not possess a reasonable expectation of privacy in the identifying characteristics of his DNA." 99 A.3d at 761-62, 765 (citing *King*, 133 S.Ct. at 1967). In fact, the court held, "because *no individual* has a reasonable expectation of privacy in his or her identifying physical characteristics[,] [i]t therefore matters not that, at the time of the analysis, [Raynor was] . . . a 'free person.'" *Id.* at 764 n.9 (emphasis added). As the dissenting Judge noted, the result of the court's holding is "that a person desiring to keep her DNA profile private, must conduct her public affairs in a hermetically-sealed hazmat suit." *Raynor,* 99 A.3d at 775 (Adkins, J. dissenting).

In *Varriale v. State*, decided just this past August, the Maryland Court of Appeals once again relied on *King's* fingerprint analogy to hold that a person lacks a Fourth Amendment privacy interest in DNA collected by the police—even when the person, who is not in police custody, consents to the initial DNA collection for one purpose (investigation of one particular crime) but the police use it for a different purpose (comparison to a vast database of unsolved crimes). (2015) 119 A.3d 824. The court concluded that after the initial cheek swab to obtain the DNA sample, "the Fourth

Amendment was not triggered. Therefore, the State did not need a warrant or Varriale's additional or express consent in order to conduct further testing of his DNA or upload it to the LDIS for comparison with other DNA profiles." *Varriale,*119 A.3d at 838-39. The dissenting judges in the case noted that the effect of this ruling is that "those who consent to the taking of their biological materials, in an effort to help the police, will face a certain knowledge that, even if not suspected or convicted of a crime, the police can, and will, hold on to their DNA profile forever, and may compare it at any time for any or no articulable reason." *Id.* at 853 (Harrell, J. dissenting).

Raynor and *Varriale* show the logical extension of *King's* determination that the only Fourth Amendment triggering event is the minimal trespass of the initial cheek swab. Given the greater protections for privacy, including informational privacy, offered by the California Constitution, this Court should not allow California to follow down the same path.

b. Reconceptualizing "Identification" to Include Investigative Information Further Opens the Door to Abuse

King stated that the government's interest in using DNA for identification was not limited to, for example, knowing a person's name, but also extended to "knowing 'whom they are dealing with.'" 133 S.Ct. at 1972 (quoting *Hiibel v. Sixth Judicial Dist. Ct*, 542 U.S. 177, 186 (2004)). The Supreme Court stated the arrestee's "'criminal history is a critical part of his identity,' just like any other information found in 'public and police records.'" *Ibid.* at 1972. However, as Professor Erin Murphy notes, if the government's "interest in identity is capacious enough to include information about 'a record of

violence or mental disorder,'" it could, in the future, allow the government to include in it's "identification" analysis a search of the arrestee's DNA to discover whether he or she possessed a "pedophile gene" or a "violence gene," if researchers ever found either of those genes.[41] Despite California's protests to the contrary, such a search would be prevented by neither Penal Code § 295.1, which states that DNA analysis may only be performed "for identification purposes," nor Penal Code § 295.2's protections against using arrestee or offender DNA for genetic testing. Section 295.2 only precludes the state from mining the DNA and forensic identification database and data bank "as a source of genetic material for testing, research, or experiments . . . to find a causal link between genetics and behavior or health." It does not necessarily preclude the state from searching DNA once that causal link to behavior or health has already been made—if that link is helpful to the state in "identifying" the arrestee.

The Maryland court's rulings in *Raynor* and *Varriale* show the logical extension of *King's* analysis. But a holding that our constitutional rights to be free from unlawful searches and seizures creates no meaningful limits on the government's ability to collect and repeatedly search our DNA—and search our DNA for information about us beyond just who we are—presages a future in which every person's DNA could be collected, sampled, and profiled, not only without individualized suspicion of wrongdoing but without a person's knowledge and despite his refusal to consent.

[41] Murphy, *supra* note 40, at 180.

II. DNA COLLECTION IMPLICATES SIGNIFICANT PRIVACY INTERESTS

Personal privacy interests outweigh California's interests in the collection of DNA from arrestees. Numerous judges have recognized the threat to privacy posed by ever-expanding DNA collection and analysis. See, e.g., *Buza* 231 Cal.App.4th at 1468 ("DNA contains an extensive amount of sensitive personal information" (citation omitted))*; State v. Medina* (Vt. 2014) 102 A.3d 661, 682 (DNA "provide[s] a massive amount of unique, private information about a person that goes beyond identification of that person"); *King*, 133 S.Ct. at 1989 (Scalia, J. dissenting) (noting the "vast (and scary) scope" of the majority's holding); *Raynor*, 99 A.3d at 771 (Adkins, J., dissenting) (DNA "is immensely personal and private, and deserves the staunchest protection under the Fourth Amendment"); *Haskell v. Harris* (9th Cir. 2012) 669 F.3d 1049, 1079 (W. Fletcher, J., dissenting) ("DNA testing constitutes a greater infringement on privacy than fingerprinting"); *United States v. Mitchell* (3d Cir. 2011) 652 F.3d 387, 424 (Rendell, J., dissenting) (courts "should not be blind to the potential for abuse" with DNA analysis and "concerns are legitimate and real, and should be taken into account"); *United States v. Kincade* (9th Cir. 2004) 379 F.3d 813, 842 n.3 (Gould, J., concurring) ("the advance of science promises to make stored DNA only more revealing in time").

Three aspects of the expanding use of DNA technology are relevant to the Court's analysis here: (1) the breadth and depth of private information available in DNA; (2) the clear trend toward cheaper and faster DNA collection, analysis, and storage driving the expansion of DNA collection and use; and (3) the very real threats to liberty posed by

excessive collection. Taken together, these show that the potential for harm from limitless DNA collection is much greater than any other law enforcement technology previously addressed by the courts.

A. DNA Contains a Person's Most Private and Personal Information

A DNA sample—taken from a cheek swab—contains a person's entire genetic makeup. As Judge Reinhardt noted in *United States v. Kriesel*, any case where the state has collected a full DNA *sample* must recognize the issues are not limited to the retention of the DNA *profile*, but also include "the retention for at least the remainder if an individual's lifetime of his full genetic code." (9th Cir. 2013) 720 F.3d 1137, 1150 (Reinhardt, J. dissenting). It is a mistake to view a DNA sample as simply a high-tech fingerprint. No one calls a fingerprint the "blueprint of our existence." No one decides whether to continue a pregnancy or undergo a double mastectomy based on a fingerprint test. Researchers do not pursue inexpensive whole-fingerprint tests so that preventive and curative interventions can be tailored to individual patients. Scientists do not race to unlock the fingerprint's clues about predisposition toward mental illness, violence, sexual deviance, or addiction. But all of this is true of DNA.

Unlike a fingerprint, the private and intensely personal information contained in our DNA can reveal where our ancestors came from, who we are related to, whether we are likely to suffer from genetically-determined diseases, and possibly even our behavioral tendencies and sexual orientation.[42] California retains this genetic data

[42] See *supra* note 2.

indefinitely, Penal Code § 299.5(b), keeping it in the government's hands and out of the individual's control.

A DNA Profile, extracted from the DNA sample raises its own privacy issues, both for the person who submitted the sample and for his or her family members. Although California argues that an arrestee's DNA profile contains no more information than a fingerprint, this is incorrect. While the intrusiveness of a fingerprint is limited to cataloging the pattern of loops and whorls on a person's finger, with just the 13 CODIS core loci, the state can infer relatedness and may, in the future, be able to infer additional information.

Although the alleles that make up a CODIS profile are non-coding, they are linked[43] to specific regions within our DNA that influence physical traits or disease predispositions. Especially when combined with other publicly-available genetic data,[44] CODIS information may make it possible to infer a person's physical traits or propensity for disease from his profile. Access to a profile and information about the profile owner's relatives would, if any near relatives had their full genomic data in a public database, enable inferences about the profile owner's genetic makeup, including any disease-causing variant that lies in the third of the human genome co-inherited (roughly within 50 million base pairs) with a CODIS marker. Tens of thousands of humans have already had

[43] "Linked" in the genetic sense, meaning co-inherited with high probability.

[44] Public sources for genetic data include the many online genetic genealogy databases and other public health sources such as the National Institutes of Health's GenBank, "an annotated collection of all publicly available DNA sequences." See *GenBank Overview*, Nat'l Center for Biotech. Info., Nat'l Insts. of Health, http://www.ncbi.nlm.nih.gov/genbank/.

their genomes completely sequenced,[45] and close to two million have voluntarily contributed DNA to one or more of the three largest commercial DNA databases.[46] And these numbers are increasing rapidly as the costs of sequencing decline.[47] This means that a substantial, and ever growing, fraction of the population has a fourth degree or closer relative whose genetic information is available in public or private databases.

It is highly likely the government will engage in this kind of data aggregation and data mining. Several federal agencies have centers devoted to analyzing publicly available data to look for trends and specific threats.[48] And researchers have recently

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[45] See *Genomes by the Thousand*, Nature (Oct. 28, 2010), http://www.nature.com/news/2010/101027/pdf/4671026a.pdf; see also Victoria Turk, *The UK's Plan to Sequence 100,000 Human Genomes*, Motherboard (July 17, 2015), http://motherboard.vice.com/read/the-uks-plan-to-sequence-100000-human-genomes.

[46] National Geographic, *The Genorgraphic Project*, https://genographic.nationalgeographic.com/ (noting 742,652 participants as of the date of the filing of this brief); *AncestryDNA Database Exceeds 400,000 Genotyped Members*, Ancestry.com (April 30, 2014) http://blogs.ancestry.com/ancestry/2014/04/30/ancestrydna-database-exceeds-400000-genotyped-members/; Ron Winslow, *23andMe to Mine Genetic Database for Drug Discovery*, Wall St. J. (March 12, 2015) http://www.wsj.com/articles/23andme-to-use-genetic-database-for-drug-discovery-1426161601 (noting 23andMe has "accumulate[d] genetic information on 850,000 customers").

[47] *Ibid.*; *DNA Sequencing Costs*, National Human Genome Research Institute, http://www.genome.gov/images/content/cost_genome.jpg (graph showing sequencing costs declining from $100 million in 2001 to less than $10,000 today).

[48] See, e.g., Darwin Bond Graham & Ali Winston, *The Real Purpose of Oakland's Surveillance Center*, East Bay Express (Dec. 18, 2013) http://www.eastbayexpress.com/oakland/the-real-purpose-of-oaklands-surveillance-center/Content?oid=3789230 (noting the plans for Oakland's Domain Awareness Center included plans to transmit into a centralized hub "untold number of public and private video cameras from businesses, traffic intersections, public housing properties, highways and onramps, transit stations, sports facilities, and public schools" and to combine that date with "automated license-plate reader data, ShotSpotter gunshot detectors, and social

engaged in similar data aggregation to re-identify anonymized genetic samples—determining not just the name of the person who submitted the sample in the first place but also his entire family—"in total . . . breach[ing] the privacy of nearly 50 individuals" from three original samples.[49] Those researchers concluded, "[t]his study shows that data release, even of a few markers, from one person can spread through deep genealogical ties and lead to the identification of another person who might have no acquaintance with the person who released his genetic data." *Ibid.* Although standard CODIS DNA profiles currently lack the Y-chromosome information the researchers used for re-identification, California re-tests offender DNA samples for Y-STR type once a familial search of its database identifies a partial match.[50]

The fact that the government is able to conduct familial searches using only the CODIS core loci contained in the DNA profile demonstrates the additional privacy impact DNA collection has on an arrestee's family members—people whose expectation

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media feeds"). See also Nate Berg, "*Predicting crime, LAPD-style*," The Guardian (June 25, 2014) http://www.theguardian.com/cities/2014/jun/25/predicting-crime-lapd-los-angeles-police-data-analysis-algorithm-minority-report (describing similar system in Los Angeles).

[49] Melissa Gymrek, et al., *Identifying Personal Genomes by Surname Inference*, 339 Science 321, p.322 (Jan. 18, 2013) *available at* http://data2discovery.org/dev/wp-content/uploads/2013/05/Gymrek-et-al.-2013-Genome-Hacking-Science-2013-Gymrek-321-4.pdf.

[50] *Information Bulletin: DNA Partial Match (Crime Scene DNA Profile to Offender) Policy*, Cal. Dept. of Justice (Oct. 27, 2008), http://ag.ca.gov/cms_attachments/press/pdfs/n1548_08-bfs-01.pdf. Including this information in a CODIS profile may become routine. The FBI is exploring including Y STR and mitochondrial DNA in CODIS to determine patrilineal and matrilineal relationships. See *CODIS—The Future*, FBI, https://www.fbi.gov/about-us/lab/biometric-analysis/codis/codis_future.

of privacy should not be diminished merely because they are related to someone who was once in police custody.

Because we inherit the twenty-six alleles that make up a CODIS profile directly from our biological parents, "there is a significant probability that two people who share biological ties will also share a large number of alleles in common."[51] California expressly authorizes and conducts familial searches on DNA collected from those convicted of a crime.[52] Although California currently does not conduct familial searches on arrestee DNA, no California statute prohibits this practice. *Buza*, 231 Cal.App.4th at 1463.[53] As discussed further below, familial searching exposes an arrestee's family members to risks to their liberty interests that they would not face if the arrestee's DNA were not in a database in the first place. They should not face this hazard, given that their own DNA would not be eligible for inclusion in the database under current law.[54]

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[51] Erin Murphy, *Relative Doubt: Familial Searches of DNA Databases*, 109 Mich. L. Rev. 291, 295 (Dec. 2010). See also *id.* at 328-329 (questioning efficacy of familial search based on limited examples of success and "an equal number of sensational stories revealing laboratory corruption or malfeasance or even honest mistakes that result in erroneous arrest, prosecution, or conviction on the basis of DNA evidence.")

[52] See *also* State of California Department of Justice, Office of the Attorney General, *BFS DNA Frequently Asked Questions: California's Familial Search Policy*, https://oag.ca.gov/bfs/prop69/faqs.

[53] *Ibid.*

[54] Murphy, *supra* note 51, at 326 (noting "familial searches effectively add the profiles of relatives to the database, even though they are not eligible for inclusion according to the established legal criteria").

These threats to privacy will only increase as more genetic data becomes publicly available, more research is conducted on that genetic data, and the number of alleles included in a CODIS profile increases—which the FBI is already considering.[55]

B. As the Cost of DNA Processing Drops, the Government is Already Expanding Its Collection and Use of DNA

Several judges have rightly warned of the "slippery slope toward ever-expanding warrantless DNA testing." *Pool*, 621 F.3d at 1235 (Schroeder, J., dissenting); see also *King*, 133 S.Ct. at 1989 (Scalia, J., dissenting); *Mitchell*, 652 F.3d at 429 (Rendell, J., dissenting). Collection, sharing and analysis of DNA profiles has increased significantly as technological advances, reduced costs, and policy changes enable even the smallest local police department to create and maintain its own DNA database.[56]

After California began collecting DNA from arrestees, the number of profiles in its state database increased dramatically.[57] A 2010 report noted that, including California's offender database, the state has "one of the most inclusive DNA databases in the country, . . . [comprising] about 3.5% of its population."[58] Due in part to the breadth

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[55] See *Planned Process and Timeline for Implementation of Additional CODIS Core Loci*, FBI, http://www.fbi.gov/about-us/lab/biometric-analysis/codis/planned-process-and-timeline-for-implementation-of-additional-codis-core-loci.

[56] Joseph Goldstein, *Police Agencies Are Assembling Records of DNA*, N.Y. Times (June 12, 2013) http://www.nytimes.com/2013/06/13/us/police-agencies-are-assembling-records-of-dna.html.

[57] See, e.g., *DNA Frequently Asked Questions: Effects of the All Adult Arrestee Provision*, Cal. Bureau of Forensic Servs., http://oag.ca.gov/bfs/prop69/faqs (noting that after California's arrestee DNA collection law passed, the average DNA submission rate doubled from 12,000 per month in 2008 to 26,500 per month in 2009).

[58] Jeremiah Goulka, et al., *Toward a Comparison of DNA Profiling and Databases in the United States and England* 18, RAND (2010)

of its DNA collection laws, California's databank is the largest state database in the country[59] and the third largest in the world.[60] But despite the size of its database, California "is anomalous in the relatively low number of investigations aided."[61] And in fact, research has repeatedly shown that, notwithstanding anecdotal claims by advocates to the contrary, bigger is not better when it comes to arrestee and offender DNA databases. The ability of the police to solve crimes using DNA is "more strongly related to the number of crime-scene samples than to the number of offender profiles in the database."[62] "[S]tudy after study has shown that improving the collecting of DNA from crime scenes, not from known offenders [or from arrestees], would make the real difference in solving cases."[63] Using data released as part of separate litigation in federal

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http://www.rand.org/content/dam/rand/pubs/technical_reports/2010/RAND_TR918.pdf (hereinafter RAND Report).

[59] *Id.* at 18.

[60] *Brown Announces Elimination of DNA Data Bank Backlog* (Sept. 10, 2007) https://oag.ca.gov/news/press-releases/brown-announces-elimination-dna-data-bank-backlog.

[61] RAND Report, *supra* note 58 at 19.

[62] *Id.* at 1 ("database matches are more strongly related to the number of crime-scene samples than to the number of offender profiles in the database.") See also Victor Toom, *Forensic DNA Databases in England and the Netherlands: Governance, Structure and Performance Compared*, New Genetics and Society 31(3) (2012) https://www.academia.edu/515387/Forensic_DNA_databases_in_England_and_the_Netherlands_governance_structure_and_performance_compared_2012_.

[63] Erin Murphy, Inside the Cell, (2014) pp. 271-74.

court challenging California's arrestee DNA collection law, Researchers showed this to be true right here in California.[64]

With surveillance, reduced costs and efficiency are often detrimental to privacy. The Supreme Court recognized this in *Jones* when it considered the constitutionality of tracking a car via a GPS device for 28 days. Almost thirty years earlier, the Court held there was no expectation of privacy in public, secure in the fact the technique at issue (primitive police "beepers" used to follow suspect cars) was so costly it was used only in limited circumstances. See e.g., *United States v. Knotts* (1983) 460 U.S. 276, 283-84 (dismissing concerns over constant surveillance by finding "reality hardly suggests abuse" and reserving right to consider "dragnet-type law enforcement practices" when they occur) (quotations omitted). But in *Jones*, five justices expressed concern that newer technologies like GPS tracking devices, which make "available at a relatively low cost such a substantial quantum of intimate information about any person whom the Government, in its unfettered discretion, chooses to track," could "alter the relationship between citizen and government in a way that is inimical to democratic society." *Jones*, 132 S.Ct. at 956 (Sotomayor, J., concurring) (quotations and citation omitted); see also *id*. at 963 (Alito, J., concurring) ("availability and use of . . new devices will continue to shape the average person's expectations about . . . privacy"). The same concerns were present in *Riley*, where the Court found a cell phone "not only contains in digital form

[64] See Brief of 14 Scholars of Forensic Evidence as Amici Curiae, p. 8, *Maryland v. King* (2013) 133 S.Ct. 1958 (citing data released from *Haskell v. Harris*, 669 F.3d 1049 (9th Cir. 2012)).

many sensitive records previously found in the home; it also contains a broad array of private information never found in a home in any form—unless the phone is." *Riley*, 134 S.Ct. at 2491.

The concerns about GPS technologies and the prevalence of cell phones making government surveillance cheaper and easier apply equally to DNA. When forensic DNA testing began 30 years ago, testing was expensive and required a blood sample. Labs needed large amounts of biological evidence from a crime scene to develop a DNA profile.[65] For these reasons DNA was rarely collected. Analyzing DNA continued to be costly twenty years ago, when several states and the FBI began maintaining DNA indexes for law enforcement purposes.[66] Today, however, new technologies "make it possible to sequence the whole exome or genome of a person at a price that is affordable for some health-care systems."[67] A 2010 report prepared for the U.S. Department of Defense concluded that with improved technology "DNA sequencing costs will no longer be a factor limiting personal human genomics technologies."[68] And a recent report from the

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[65] See Stephen Mercer and Jessica Gabel, *Shadow Dwellers: The Underregulated World of State and Local DNA Databases,* 69 N.Y.U. Ann. Surv. Am. L. (2014) 639, 645-46.

[66] See, e.g., *CODIS Brochure*, FBI, *available at* http://www.fbi.gov/about-us/lab/biometric-analysis/codis/codis_brochure (FBI's National DNA system established in 1994); see also *The $100 Genome: Implications for the DoD,* JASON, The MITRE Corporation (2010) , at 2, *available at* www.fas.org/irp/agency/dod/jason/hundred.pdf.

[67] Carla G van El, et al., *Whole-Genome Sequencing in Health Care* (2013) 21 European J. Human Genetics 580-84, *available at* http://www.nature.com/ejhg/journal/v21/n1s/full/ejhg201346a.html.

[68] See *The $100 Genome*, *supra* note 61, at 2. See also *id.* at 12 (predicting that at costs below $1,000 per genome, many "applications of DNA sequencing become cost effective" including research access to "thousands or even millions of human genomes to

National Human Genome Research Institute notes that the sharp decline in the cost of sequencing the human genome has far outpaced Moore's Law; as of July 2015, the cost of sequencing an entire human genome is now only $1,363.00—as compared to nearly $100 million just 14 years ago.[69]

The reduced cost of genomic sequencing has allowed scientists to conduct research to learn not only which of our genes may be linked to diseases or medical conditions but also to discern which genes may be tied to other phenotypic characteristics such as eye and hair color, height, and racial or ethnic ancestry. Using this information, scientists have started to predict what a person might look like—or "'reverse-engineer' DNA into a physical profile"[70]—using only a small sample of the person's genetic material. One lab, funded by the Department of Defense, claims it can "accurately predict[] genetic ancestry, eye color, hair color, skin color, freckling, and face shape in individuals from any ethnic background, even individuals with mixed ancestry."[71] Although these techniques could exacerbate racial profiling,[72] and, if misused, would

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seek correlations between genotypes and phenotypes," patient access to genome sequencing along with standard medical laboratory tests, and [e]ven full genome sequencing offered as a service by "web-based genetic testing service companies . . . to gather and dispense medical and ancestry information, and provide genetic counseling").

[69] Kris Wetterstrand, *DNA Sequencing Costs: Data from the NHGRI Genome Sequencing Program*, NIH http://www.genome.gov/sequencingcosts/; http://www.genome.gov/pages/der/sequencing_costs_oct2015.xlsx

[70] Parabon Snapshot, https://snapshot.parabon-nanolabs.com/.

[71] *Ibid.*

[72] Andrew Pollack, *Building a Face, and a Case on DNA*, N.Y. Times (Feb. 23, 2015) http://www.nytimes.com/2015/02/24/science/building-face-and-a-case-on-dna.html.

have a very real impact on personal privacy, several law enforcement agencies are already using them.[73]

The monetary and practical costs of processing DNA samples to obtain a profile have also decreased. With newer, more sensitive testing technology, police no longer need large quantities of genetic material to produce a forensic profile; they "can collect and analyze trace amounts of 'touch' DNA from surfaces like doorknobs, steering wheels, or windows."[74] The federal government also has invested substantial funds to develop Rapid DNA analyzers—portable machines about the size of a laser printer that can be used by non-scientists outside a lab.[75] These machines can produce a DNA profile in 60 minutes or less for as little as $100 per sample[76] and are already used by law enforcement in Florida and Arizona.[77]

Given the convenience and speed of Rapid DNA and the portability of the testing equipment, its use could soon become a routine part of traffic stops. One manufacturer

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[73] Ellen McRae Greytak, *DNA Phenotyping and Kinship Determination*, Parabon NanoLabs, p. 19 https://www.afcea.org/events/documents/Greytak22Sep1100.pdf

[74] Mercer, *supra* note 59, at 646.

[75] *See* Jennifer Lynch, *Rapid DNA: Coming Soon to a Police Department or Immigration Office Near You*, EFF (Jan. 6, 2013), https://www.eff.org/deeplinks/2012/12/rapid-dna-analysis. Records are available at https://www.eff.org/file/36203#page/2/mode/1up, 9-10.

[76] Portable DNA Analyzer, NEC, http://www.nec.com/en/global/solutions/biometrics/products/portable_dna_analyzer.html. See also Chris Miles, *DHS Rapid & Low-Cost Biometrics*, p. 10, *available at* https://www.eff.org/files/filenode/2011_dhs-s_t_rapiddna_foia_records_25-dhs_rapiddna_ppt_presentation.pdf.

[77] See, *White Paper: The Case for Rapid DNA,* IntegenX (2012), http://integenx.com/wp-content/uploads/2012/05/The-Case-for-Rapid-DNA.pdf; *Revolutionary DNA Testing Instruments Now Available to DPS Detectives*, Arizona Dep't of Public Safety (May 13, 2014), http://www.azdps.gov/Media/News/View/?p=477.

has already designed its technology to be used in the trunk of a squad car.[78] Rapid DNA results cannot yet be entered into CODIS,[79] but this may encourage the 500+ law enforcement agencies in California[80] to create underregulated local DNA databases, as Orange County, California has already done.[81] Without hard limits on DNA collection, these tools could easily be used (and abused) to collect DNA even outside of the booking context, based on little or no real suspicion of criminal activity.

Governments are also spending millions of dollars to expand other DNA collection and testing capabilities and to increase database capacity. In 2006, the federal Department of Justice awarded a multi-year, multi-million-dollar contract to Unisys to develop "Next Generation CODIS," which would expand the "scalability and flexibility" of CODIS and include a "highly sophisticated search engine technology that will greatly accelerate the DNA matching process[.]"[82] Since then, the federal DOJ has been rolling

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[78] *Portable DNA Analyzer*, NEC, http://www.nec.com/en/global/solutions/biometrics/products/pdf/catalogue.pdf.

[79] See *FAQs on the CODIS Program and the National DNA Index System*, FBI http://www.fbi.gov/about-us/lab/biometric-analysis/codis/codis-and-ndis-fact-sheet; but see also H.R. No. 320 - Rapid DNA Act of 2015, https://www.congress.gov/bill/114th-congress/house-bill/320/text (which would amend the DNA Identification Act of 1994 to allow profiles generated using Rapid DNA technology to be entered into CODIS).

[80] Brian A. Reeves, *Census of State and Local Law Enforcement Agencies, 2008* (2011) 15, DOJ BJS, http://www.bjs.gov/content/pub/pdf/csllea08.pdf (Table 6: State and local law enforcement agencies and full-time employees, by state, 2008).

[81] Stephen Mercer & Jessica Gabel Cino, *Shadow Dwellers: The Underregulated World of State and Local DNA Databases*, 69 N.Y.U. Ann. Surv. Am. L. 639, 670-71 (2014).

[82] See Press Release, *FBI Contracts with Unisys for Development and Deployment of Next-Generation Combined DNA Index System*, Business Wire (Oct. 19, 2006), http://www.businesswire.com/news/home/20061019005514/en/FBI-Contracts-Unisys-Development-Deployment-Next-Generation-Combined.

out improvements to CODIS,[83] including expanding CODIS capabilities in terms of DNA match technologies and kinship searches.[84] The federal DOJ has stated it plans to link CODIS data to the extensive biometric and biographic data stored in its vast Next Generation Identification database.[85]

Given the current uncertainty surrounding DNA collection laws, it is unclear what limits will be put in place to govern the use and prevent the abuse of these new tools.

C. Excessive DNA Collection Poses Very Real Threats to Liberty

Excessive DNA collection and the unnecessary retention and storage of DNA in databases subject to repeated searches pose very real threats to the liberty interests of the former arrestee and his or her family members.

Sloppy policing, systemic DNA lab problems,[86] and even the increasing sensitivity of DNA testing tools have led to false identifications that can only occur if an innocent person's profile is already in a database. In San Jose, Lukis Anderson spent five months in jail after a database search linked his DNA to DNA found on the fingernails of a

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[83] See generally *Exhibit 300: Capital Asset Summary: FBI Combined DNA Index System (CODIS)*, UII 011-000002501, Dept. of Justice (Aug. 1, 2012), https://it-2013.itdashboard.gov/investment/exhibit300/pdf/011-000002501.

[84] *Ibid.;* see also *CODIS—The Future*, FBI, *available at* http://www.fbi.gov/about-us/lab/codis/codis_future (noting re-architecture of CODIS will allow it "to include additional DNA technologies" such as Y-STR and mtDNA, both of which can definitively determine kinship along paternal and maternal lineages).

[85] Valerie Evanoff, *FBI Next Generation Identification (NGI) DNA Study*, Global Identity Summit (Sept. 17, 2014) http://www.biometrics.org/bc2014/presentations/Wed_1819_Evanoff_1540.pdf.

[86] See, e.g.*, Audit of Compliance with Standards Governing combined DNA Index System Activities at the County of Santa Clara District Attorney's Crime Laboratory*, DOJ OIG (2012), *available at* https://www.oig.justice.gov/reports/2012/g9012004.pdf .

murder victim—although Anderson had been hospitalized when the murder occurred.[87] In Sacramento, Shawn Ponce was falsely arrested based on his DNA and jailed for five days for two crimes he could not have committed.[88] In England, David Butler spent eight months in jail after a database search falsely matched his DNA to that found on a murder victim—despite evidence establishing his innocence.[89] Another British citizen was falsely accused of murdering a woman in Italy based solely on DNA.[90]

These errors may occur for a variety of reasons, including the unreliability of some crime scene DNA. Although forensic investigators are now able to detect, collect, and analyze trace amounts of DNA at a crime scene, these samples may contain genetic material from more than one person[91] and could even contain DNA from someone who was never at the crime scene. For example, in the case of Lukis Anderson, mentioned above, Santa Clara County prosecutors believe the paramedics who treated Mr. Anderson

[87] Henry Lee, *How Innocent Man's DNA Was Found at Killing Scene*, SF Gate (June 26, 2013), http://www.sfgate.com/crime/article/How-innocent-man-s-DNA-was-found-at-killing-scene-4624971.php.

[88] See *U.S. v. Ponce* (E.D. Cal. 2007) Mag.No. 07-00215-DAD, (E.D. Cal. 2007) SW 07-2000-KJM, (C.D. Cal. 2007) Mag.No. 07-0199.

[89] See Hannah Barnes, *DNA Test Jailed Innocent Man for Murder*, BBC (Aug. 31, 2012)), http://www.bbc.co.uk/news/science-environment-19412819.

[90] Linda Geddes, *DNA Super-Network Increases Risk of Mix-Ups*, New Scientist (Sep. 5, 2011), http://www.newscientist.com/article/mg21128285.500-euro-dna-treaty-risks-false-positives.html.

[91] See Mercer, *supra* note 59, at 646 ("the relevance and reliability of low-level DNA profiles from surfaces likely to contain DNA from more than one person can be very uncertain.")

for intoxication transferred his DNA to the murder victim when they responded to the crime scene hours after dropping Anderson off at the hospital.[92]

Low copy number DNA—the analysis of crime scene DNA containing only a few cells[93]—and the reliance on partial matching techniques can also result in false matches—implicating someone for a crime they didn't commit. "The small quantity of starting material [inherent in low copy number DNA] in conjunction with the increased number of rounds of PCR can result in an increase in 'stochastic effects,' which are random errors that create inaccuracies in DNA testing." *United States v. Morgan* (S.D.N.Y. 2014) 53 F.Supp.3d 732, 736. Because of its increased sensitivity, low copy number DNA also runs a greater risk of contamination—of extraneous DNA being included and amplified in the sample—both in the field and in the lab.[94]

Partial matching—where a forensic profile matches an arrestee or offender profile on some but not all of the 26 alleles—may occur if a low-quality crime scene sample doesn't have enough information to reliably discriminate between people who may be potential contributors. Although in the past researchers believed it was "exceedingly rare" for unrelated individuals to share the same markers at multiple loci in the standard

[92] Lee, supra note 83.

[93] *Low Copy Number DNA Cases,* Denver DA, http://www.denverda.org/DNA/Low%20Copy%20DNA%20Profiling%20Cases.htm.

[94] See Peter Gill, *Application of Low Copy Number DNA Profiling*, Croatian Medical Journal 42(3): 229-232 (2001), http://www.denverda.org/dna_documents/lcn%20dna%20article%20gill.pdf.

CODIS profile, now it appears this is more common than previously thought.[95] Analysts in Arizona's state crime lab found, after studying the state's database of only 65,493 people, that there were 122 sets of people who shared the same genetic markers at nine of the 13 loci, and "some even shared markers at 10, 11 or 12 places."[96] The United Kingdom's 2005-2006 National DNA Database Annual Report noted that, after attempting to match forensic profiles against its offender database, it had multiple potential suspects for 50,434 out of 182,612 crime scene profiles. This was "largely due to the significant proportion of crime scene sample profiles that are partial."[97]

The problems inherent in low copy number DNA and partial matching may be compounded by improper DNA analysis and lab mistakes. "When there is uncertainty about the number of contributors to a crime scene DNA sample and whether all of the data is complete, a forensic analyst's interpretation of the data to identify profiles of the contributors becomes prone to subjective assessments, bias, and error."[98] This came to light in San Francisco in 2010, when an FBI audit of the city's crime lab "found that out

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[95] Erin Murphy, *The Dark Side of DNA Databases*, The Atlantic (Oct. 8, 2015) http://www.theatlantic.com/science/archive/2015/10/the-dark-side-of-dna-databases/408709/.

[96] *Ibid.*

[97] *National DNA Database Annual Report 2005-2006*, (2006) at 35, Nat'l DNA Database Strategy Bd., (U.K.), *available at* http://www.genewatch.org/uploads/f03c6d66a9b354535738483c1c3d49e4/DNA_report2005_06.pdf.

[98] Mercer, *supra* note 65, at 676 (citing 2011 study in which seventeen qualified DNA analysts from accredited crime laboratories were asked to evaluate DNA data that had actually been used to prove a Georgia man guilty of participating in a gang rape; twelve excluded the Georgia man as a possible contributor, four found the samples to be uninterperetable, and one found the man was a possible contributor to the forensic mixture of DNA).

of 100 samples of evidence the lab had submitted to the state and federal offender tracking database, seven were not up to standard and should be removed."[99] Then in December 2014, a technician from the same lab made assumptions about missing data from a low quality crime scene sample and passed the resulting genetic profiles off as complete, perhaps incorrectly implicating a defendant whose DNA was already in the state database. After the mistake came to light, authorities had to review 1,400 criminal cases that were prosecuted in part based on DNA work done by the same technician.[100]

These lab problems are not limited to California. In New York in 2013, the medical examiner's office reviewed 800 rape cases where "critical DNA evidence may have been mishandled or overlooked by a lab technician, resulting in incorrect reports being given to criminal investigators."[101] And earlier this year federal prosecutors in Washington DC stopped sending DNA evidence to the city's crime lab after outside experts found numerous lab mistakes. "In one case, the crime lab concluded that DNA on

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[99] Jaxon Van Derbeken, *Technician, Boss in SFPD Lab Scandal Flunked DNA Skills Exam*, San Francisco Chronicle (March 31, 2015), http://www.sfgate.com/bayarea/article/Technician-boss-in-S-F-police-lab-scandal-6169230.php; see also Jaxon Van Derbeken, *San Francisco police crime lab accused of cover-up*, San Francisco Chronicle (Dec. 4, 2010), http://www.sfgate.com/news/article/San-Francisco-police-crime-lab-accused-of-cover-up-2454525.php (noting in 2008, the crime lab switched DNA test vials and then altered records to cover up the mistake).

[100] *Ibid*.

[101] Joseph Goldstein, *New York Examines Over 800 Rape Cases for Possible Mishandling of Evidence*, N.Y. Times (Jan. 10, 2013), http://www.nytimes.com/2013/01/11/nyregion/new-york-reviewing-over-800-rape-cases-for-possible-mishandling-of-dna-evidence.html.

the magazine of a gun might belong to one defendant, while an outside expert ruled that it definitely wasn't from that defendant."[102]

Ultimately each of these issues with crime scene evidence—whether due to lab analyst error, partial match problems, or low copy number DNA—impacted real people whose DNA was already in an offender or arrestee database. These people faced not only the very-real indignity of living under a cloud of suspicion until and possibly after their names were cleared,[103] but also the possible deprivation of their physical liberty by being forced to spend time in jail solely on the basis of a false DNA match.

Familial searches raise additional liberty concerns; they can turn family members into "genetic informant[s]" on each other.[104] In Louisiana, a rape victim provided her DNA to help convict her rapist, but law enforcement used it instead to convict her brother of other crimes.[105] Familial searching also leads to false positives; researchers analyzing California's familial search protocol noted that, because the protocol uses only limited

[102] Rebecca Cohen, *Forget CSI: Real-Life Crime Labs Are a Total Mess*, Mother Jones (Apr. 20, 2015), http://www.motherjones.com/politics/2015/04/why-do-crime-labs-keep-screwing-dna-tests; see also Erin Murphy, *The New Forensics: Criminal Justice, False Certainty, and the Second Generation of Scientific Evidence* 95 Calif. L. Rev. 721, 755 (2007) (noting several scandals that "have revealed systemic problems in a number of "flagship" DNA laboratories and horrific tales of false-positive DNA matches").

[103] See Murphy, *supra* note 51, at 314 ("The worst indignity of an investigation can be living under a cloud of suspicion; even mere suspicion, quickly dispelled, has the potential to disrupt a career, destroy a marriage, or ruin a life.").

[104] See Mercer *supra* note 65, at 640.

[105] *Ibid.*

data, there is "a substantial probability" of error—that a more distant relative such as a first cousin will be falsely identified as a first-degree relative such as a full sibling.[106]

It is also quite possible that a familial search is likely to "return a number of persons that are not in fact related to the source"[107]—even where more data than the 26 alleles in a CODIS profile are available. Last year, Idaho investigators attempted to find the person who committed a 1996 rape and murder by extracting DNA data from semen left behind at the crime scene.[108] They uploaded the data to a genetic genealogy database containing DNA data voluntarily provided by thousands of members of the public, and the resulting search turned up 41 potential familial matches. One of these matched on 34 out of 35 alleles—a very close match that would generally indicate a direct familial relationship. However, when the police took and analyzed a DNA sample from the resulting suspect—the son of the man who had voluntarily provided his DNA data to the genealogy database—the suspect's DNA was not a match to the DNA left behind at the crime scene. This shows familial searching creates a high risk, not only of turning

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[106] Rori Rohlfs, et al., *The Influence of Relatives on the Efficiency and Error Rate of Familial Searching*, PLOS One (Aug. 14, 2013), http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0070495; see also Murphy, *supra* note 51, at 311 ("[I]n cases in which the crime-scene sample is degraded or contains a mixture of profiles . . . the confirmatory testing may erroneously inculpate the individual.").

[107] Murphy, *supra* note 51, at 298 (citing T.M. Reid et al., Use of sibling pairs to determine the familial searching efficiency of forensic databases, Forensic Sci. Int.: Genetics 340-42 (2008)).

[108] Jennifer Lynch, *How Private DNA Data Led Idaho Cops on a Wild Goose Chase and Linked an Innocent Man to a 20-year-old Murder Case*, EFF (May 1, 2015) https://www.eff.org/deeplinks/2015/05/how-private-dna-data-led-idaho-cops-wild-goose-chase-and-linked-innocent-man-20.

immediate family members into targets for further investigation, but of implicating completely random people.

Familial searching, like DNA databanks as a whole, compounds the criminal justice system's disproportionate impact on people of color because criminal databases contain disproportionally more minority DNA.[109] Maryland, which collects demographic data on DNA samples, has found DNA from African-Americans represented approximately 60% of the samples collected.[110] According to census data, African-Americans make up only about 30% of Maryland's population.[111] Even accounting for

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[109] See *Criminal Justice Fact Sheet*, NAACP, http://www.naacp.org/pages/criminal-justice-fact-sheet; Jason Silverstein, *The Dark Side of DNA Evidence*, The Nation (March 27, 2013) (citing Jeremy Gruber, former executive director of the Council for Responsible Genetics, for the premise that "[b]y 2011, African-Americans made up 40 percent of the Combined DNA Index System (CODIS)," even though, according to the United States Census Bureau, as of the 2010 census, African Americans constituted only 12.6% of the total United States population), http://www.thenation.com/article/dark-side-dna-evidence/; *Overview of Race and Hispanic Origin: 2010,* U.S. Census Bureau (2011) 4, http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf. See also Michael T. Risher, *Racial Disparities in Databanking of DNA Profiles,* Race and the Genetic Revolution: Science, Myth, and Culture (2011) (discussing the underlying causes of racial disparities within the criminal justice system and noting that racial disparities in the data contained within DNA databanks will continue to grow "as more and more people of color's DNA profiles are included in databases that make them potential suspects whenever DNA is recovered from a crime scene."); Murphy, *supra* note 51 (noting "familial searches of convicted offender and arrestee databases exacerbate the actual and apparent disparities of the criminal justice system, in which people of color are disproportionately represented").

[110] *2011 Annual Report: Maryland State Police Forensic Sciences Division Statewide DNA Database Report*, Dep't of Md. State Police, (2012) , 7, *available at* http://mdsp.maryland.gov/Document%20Downloads/Statewide%20DNA%20Database%202011%20Annual%20Report.doc.

[111] *State and County Quickfacts*, United States Census Bureau, http://quickfacts.census.gov/qfd/states/24000.html.

differences in how familial searching techniques impact DNA profiles from various races and ethnicities, researchers have found "the reliance on racially disproportionate databases will on average impact the targeting of suspicion, drawing disproportionate attention toward Hispanics and African Americans and against Asian Americans, and weakly affecting Caucasians."[112] Other researchers have stated that if familial searching were conducted on a mass scale, as much as 17% of the total African-American population in the United States—not limited to those previously arrested or convicted—could be identified through DNA profiles already in CODIS compared to only 4% of Caucasians.[113] This disproportionate representation leads to a "roughly two orders of magnitude higher" rate of false identification among the African-American population.[114] No parallel risk exists for fingerprinting.

[112] Murphy, *supra* note 51, at 323.

[113] See Henry T. Greely, et al., *Family Ties: The Use of DNA Offender Databases to Catch Offenders' Kin*, 34 J.L. Med. & Ethics 248, 259 (2006)). CODIS has increased from about 4 million offender profiles in 2006 to nearly 12 million today, so this percentage could now be much higher. See *CODIS Brochure*, FBI, http://www.fbi.gov/about-us/lab/biometric-analysis/codis/codis_brochure; *CODIS—NDIS Statistics*, FBI, http://www.fbi.gov/about-us/lab/biometric-analysis/codis/ndis-statistics.

[114] Rohlfs, *supra* note 106.

CONCLUSION

Courts did not need to think about privacy interests in DNA when it was costly and difficult to analyze. That is no longer true. Just as we cannot hide our faces in public or participate in everyday life without leaving electronic footprints, we cannot hide our DNA; we leave behind skin cells wherever we go. To limit government DNA-based surveillance we must first limit governmental collection and retention of DNA, starting by ending mass DNA collection from arrestees.

Warrantless and suspicionless DNA collection from arrestees is the next step toward a future where "all Americans will be at risk . . . of having our DNA samples permanently placed on file in federal cyberspace, and perhaps even worse, of being subjected to various other governmental programs providing for suspicionless searches conducted for law enforcement purposes." *Kincade*, 379 F.3d at 843 (Reinhardt, J., dissenting). This is not merely a "parade of horribles," *Haskell*, 669 F.3d at 1062, but the road we are on. This Court can and should stop this trajectory.

Dated: November 13, 2015

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

I certify pursuant to California Rules of Court 8.204 and 8.504(d) that this Amicus Brief is proportionally spaced, has a typeface of 13 points or more, contains 11,705 words, excluding the cover, the tables, the signature block, verification, and this certificate, which is less than the total number of words permitted by the Rules of Court. Counsel relies on the word count of the Microsoft Word word-processing program used to prepare this brief.

Dated: November 13, 2015 By: /s/ Jennifer Lynch
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CERTIFICATE OF SERVICE

Case Name: ***People v. Mark Buza***
Case No. **S223698**

I, Madeleine Mulkern, do hereby affirm I am employed in the County of San Francisco, State of California. I am over the age of 18 years and not a party to the within action. My business address is 815 Eddy Street, San Francisco, California 94109. I am employed in the office of a member of the bar of this court at whose direction the service was made.

On November 13, 2015, I served the foregoing document: **APPLICATION OF THE ELECTRONIC FRONTIER FOUNDATION, THE NATIONAL ASSOCIATION OF CRIMINAL DEFENSE LAWYERS, THE MARYLAND PUBLIC DEFENDER, AND INTERESTED LEGAL SCHOLARS FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF and *AMICUS* BRIEF IN SUPPORT OF DEFENDANT AND APPELLANT MARK BUZA** on the following parties by placing a copy of the document(s) listed above in a sealed envelope, addressed to the parties listed below, which envelope was then sealed by me and deposited in the United States Mail, postage prepaid, at San Francisco, California.

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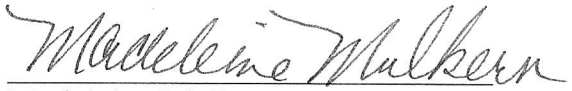
I declare under penalty of perjury that the foregoing is true and correct. Executed on November 13, 2015 at San Francisco, California.



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