SUPREME COURT NO. 20-1150
LINN COUNTY CASE NO. FECR129718

IN THE SUPREME COURT OF IOWA

STATE OF IOWA,
Appellee,

v.

JERRY LYNN BURNS
Defendant-Appellant.

APPEAL FROM THE IOWA DISTRICT COURT FOR LINN COUNTY
HONORABLE FAE HOOVER GRINDE, DISTRICT COURT JUDGE

BRIEF OF *AMICI CURIAE*:
AMERICAN CIVIL LIBERTIES UNION
AMERICAN CIVIL LIBERTIES UNION OF IOWA
ELECTRONIC FRONTIER FOUNDATION
IN SUPPORT OF DEFENDANT-APPELLANT

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**Pro Hac Vice Application Pending*

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Neither party nor their counsel participated in the drafting of this brief, in whole or in part. Neither party nor their counsel contributed any money to the undersigned for the preparation or submission of this brief. The drafting of this brief was performed pro bono publico by *amici curiae*.

IDENTITY AND INTEREST OF *AMICI CURIAE*

Amici American Civil Liberties Union ("ACLU"), ACLU of Iowa, and Electronic Frontier Foundation ("EFF") submit this amicus brief with the consent of the parties.

The ACLU is a nationwide, nonprofit, nonpartisan organization dedicated to defending the principles of liberty and equality embodied in the Constitution and our nation's civil rights laws. The ACLU of Iowa is a state affiliate of the national ACLU. EFF is a member-supported, non-profit civil liberties organization that has worked to protect free speech and privacy rights in the online and digital world for nearly 30 years. Each organization has a longstanding interest in ensuring that constitutional protections for privacy are not eroded by the advance of technology.

INTRODUCTION

Our DNA contains our entire genetic makeup, revealing such intensely personal information as whether an individual has rare genetic disorders or whether they are likely to develop breast cancer or sickle cell anemia. When combined with other personal information, DNA can reveal whether a person was adopted, and whether they come from a family with a history of miscarriages or early mortality.

Despite the sensitivity of this information, we cannot avoid leaving behind carbon copies of our entire genetic code wherever we go. In less time than it takes to order a coffee, most humans shed nearly enough skin cells to cover an entire football field.[1] The only way to avoid leaving a trail of our DNA in public spaces would be to never leave home.

Given the revealing nature of DNA and how involuntarily we shed it, the Fourth Amendment and, independently, article I, section 8 of the Iowa Constitution, impose a high bar for collecting and searching the DNA of a free person. That bar was not met here. Without a warrant, the State secretly collected Mr. Burns's DNA from a straw he used at a restaurant, and then extracted and sequenced that DNA for criminal investigative purposes. Mr. Burns was not under arrest or in government custody when his DNA was

[1] *See* Erin Murphy, *Inside the Cell: The Dark Side of Forensic DNA* 5 (2015).

collected and sequenced. Rather, he was a free person who possessed the full measure of constitutional rights.

This case is very different from those relied on by the State below. *See* Br. in Supp. of State's Resistance to Def.'s Mot. to Suppress p. 25–26. DNA is quite different from physical items thrown out in the trash or otherwise abandoned, so cases like *Greenwood v. California* and *Abel v. United States* do not apply. Although Mr. Burns may have abandoned the straw that police seized, in no meaningful sense did he knowingly or voluntarily abandon the copy of his genetic code unavoidably deposited on that straw. We do not voluntarily discard our DNA when we leave traces of it behind. In fact, the contents of our DNA are never actually visible to the public—sophisticated technology is required to extract genetic information from a sample. Moreover, given the breadth of sensitive information that may be learned about a person just from their DNA, the privacy interest in unavoidably shed DNA is of a different magnitude than the interest in physical items abandoned or placed in the trash.

Given recent technological advances in DNA analysis and the acute privacy implications of allowing the government to freely access our entire genome, this Court should reject the State's effort to extend older cases, decided in very different contexts, to bless the warrantless search at issue here. *See Riley v. California*, 573 U.S. 373, 386 (2014) (rejecting "mechanical application" of older rule to new context involving privacy-invading

technology); *Maryland v. King*, 569 U.S. 435, 465 (2013) (recognizing that advances in DNA analysis could "present additional privacy concerns," and therefore require greater Fourth Amendment protection). The Fourth Amendment and article I, section 8 require a warrant to extract, sequence, and analyze the sensitive DNA we unavoidably leave behind.

ARGUMENT

I. DNA Contains a Person's Most Private and Personal Information, and We Cannot Avoid Shedding It Wherever We Go.

A. DNA reveals highly personal and sensitive information.

A DNA sample—whether taken directly from a person or extracted from items that person leaves behind—contains a person's entire genetic makeup. This genetic information is deeply private. It can reveal intensely sensitive information about us, including our propensities for certain medical conditions, such as Alzheimer's, cystic fibrosis, breast cancer, and addiction; our ancestry; and our biological familial relationships, which can reveal previously unknown parentage, among other things. And private companies purport to be able to use our DNA for everything from identifying our eye, hair, and skin colors[2]; to determining whether we are lactose intolerant, or

[2] (1/10/20 Tr. p. 28, lines 9–19); Parabon Snapshot, https://snapshot.parabon-nanolabs.com/; GEDmatch, https://www.gedmatch.com/.

prefer sweet or salty foods[3]; to discovering the likely migration patterns of our ancestors and the identities of family members we never even knew we had.[4]

DNA technology and research continue to advance, allowing ever-greater incursions into a person's genetic privacy when a DNA sample is analyzed. The CODIS database[5] contains only small, discrete sections of each person's DNA, called "loci," yet analysis of even those fragments increasingly yields highly sensitive facts about a person. One study that examined the "STR" profiles[6] stored in CODIS was able to identify information about individuals' ancestry, which may in turn be used to reveal information about their phenotypic traits (i.e., physical appearance) based on assumptions about race and ethnicity.[7] An even more recent study suggested that the profiles

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[3] *Compare DNA Tests*, 23andMe, https://www.23andme.com/compare-dna-tests/.

[4] *What to Expect from your AncestryDNA*, Ancestry, https://support.ancestry.com/s/article/What-to-Expect-from-AncestryDNA.

[5] CODIS is "the generic term used to describe the FBI's program of support for criminal justice DNA databases as well as the software used to run these databases." Fed. Bureau of Investigation, *Frequently Asked Questions on CODIS and NDIS*, https://www.fbi.gov/services/laboratory/biometric-analysis/codis/codis-and-ndis-fact-sheet.

[6] An STR profile seeks to identify individuals by looking at how many times so-called "short, tandem, repeat" (i.e., STR) sequences occur at designated locations (i.e., loci) on the genome. *See* Murphy, *Inside the Cell* at 7–8.

[7] Bridget Algee-Hewitt et al., *Individual Identifiability Predicts Population Identifiability in Forensic Microsatellite Markers,* 26 Current Biology 935, 939 (2016), https://doi.org/10.1016/j.cub.2016.01.065.

maintained in CODIS can now be matched to single-nucleotide polymorphism ("SNP") profiles—incredibly rich genetic profiles[8] that reveal intimate details like "precise ancestry estimates, health and identification information."[9]

New data aggregation techniques have only increased the amount of sensitive information that can be gleaned from our genetic material. Forensic genetic genealogy—where investigators analyze a person's DNA profile alongside vast genetic databases and public records to create detailed family histories—are just one example. These investigations, including the one in this case, are possible because direct-to-consumer genetic testing services (like Ancestry.com) and genetic genealogy databases (like GEDmatch) have proliferated in recent years. As of early 2019, more than 26 million people had provided their DNA to sites like GEDmatch to identify their biological relatives and build sprawling family trees.[10] Although GEDmatch's 1.3 million

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[8] SNPs "are the places in the genome where people differ." *Single Nucleotide Polymorphisms (SNPs)*, National Human Genome Research Institute, https://www.genome.gov/genetics-glossary/Single-Nucleotide-Polymorphisms. "Researchers have found SNPs that may help predict an individual's response to certain drugs, susceptibility to environmental factors such as toxins, and risk of developing particular diseases." *What are single nucleotide polymorphisms (SNPs)?*, National Institutes of Health, https://medlineplus.gov/genetics/understanding/genomicresearch/snp/.

[9] Michael Edge et al., *Linkage Disequilibrium Matches Forensic Genetic Records to Disjoint Genomic Marker Sets*, 114 Proceedings of the Nat'l Acad. of Scis. 5671, 5675 (2017), https://www.pnas.org/content/114/22/5671.

[10] Antonio Regalado, *More Than 26 Million People Have Taken an At-Home Ancestry Test*, MIT Tech. Review (Feb. 11, 2019),

users encompass only about 0.5% of the U.S. adult population, research shows that, because people share genetic information with their relatives, that data alone could be used to identify a significant proportion of Americans.[11] When this genetic data is combined with birth, death, marriage, and other public records, the resulting web of familial relationships can expose a wealth of private information: adoptions, hidden infidelities, a high risk of early mortality, or a family history of certain diseases.

B. People cannot avoid shedding DNA as they go about their daily lives.

We cannot avoid leaving our genetic data behind wherever we go. People constantly shed staggering numbers of skin cells, which include our DNA.[12] The average person loses between 40 and 100 hairs per day, similarly depositing DNA.[13] A single sneeze can spew about 3,000 cell-containing droplets into the world,[14] and one milliliter of saliva contains more than

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https://www.technologyreview.com/s/612880/more-than-26-million-people-have-taken-an-at-home-ancestry-test/.

[11] Jocelyn Kaiser, *We Will Find You: DNA Search Used to Nab Golden State Killer Can Home in on About 60% of White Americans*, Science (Oct. 11, 2018), https://www.sciencemag.org/news/2018/10/we-will-find-you-dna-search-used-nab-golden-state-killer-can-home-about-60-white (noting database's ability to identify 60% of white Americans).

[12] *See* Murphy, *Inside the Cell* at 5.

[13] *See* Sheldon Krimsky & Tania Simoncelli, *Genetic Justice: DNA Data Banks, Criminal Investigations, and Civil Liberties* 117 (2012).

[14] *Id.*

430,000 DNA-containing cells.[15] Merely touching a surface with one's fingertip causes DNA to be deposited there.[16] With every discarded coffee cup, crumpled tissue, plastic straw, cigarette butt, soda can, piece of gum, and drifting flake of dandruff, people unavoidably and involuntarily leave a copy—and often many thousands of copies—of their genetic blueprint.

Law enforcement agencies well understand the constancy with which people shed their DNA. Forensic analysts are trained to avoid contaminating evidentiary DNA samples through shedding of their own genetic material by wearing elaborate personal protective equipment, including laboratory coats, gloves, face masks or shields, and hair covers.[17]

The ability of forensic investigators and others to collect DNA from everyday items has improved dramatically in recent years, meaning investigators are now able to detect, collect, and analyze even trace amounts of DNA, and

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[15] Thais Francini Garbieri et al., *Human DNA Extraction from Whole Saliva That Was Fresh or Stored for 3, 6 or 12 Months Using Five Different Protocols*, 25 J. Appl. Oral Sci. 147, 148 (2017), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5393535/pdf/1678-7757-jaos-25-2-0147.pdf.

[16] A.A. Oleiwi et al., *The Relative DNA-Shedding Propensity of the Palm and Finger Surfaces*, 55 Sci. & Justice 329, 329 (2015).

[17] Scientific Working Group on DNA Analysis Methods, *Contamination Prevention and Detection Guidelines for Forensic DNA Laboratories* § 2.3 (2017), https://1ecb9588-ea6f-4feb-971a-73265dbf079c.filesusr.com/ugd/4344b0_c4d4dbba84f1400a98eaa2e48f2bf291.pdf.

labs can isolate and sequence DNA from tiny samples. (*See* 2/17/20 Tr. p. 152, lines 17–23). In light of the unavoidability of shedding DNA-containing cells as we go about our lives, this capability means that, without constitutional protections, our entire genetic code—and all the private and sensitive information it reveals—is vulnerable to collection, search, and exploitation at the government's whim.

II. Extracting an Individual's Genetic Material and Generating a DNA Profile from it Intrudes on Privacy and Proprietary Interests Under the Fourth Amendment.

A. People have a reasonable expectation of privacy in their DNA.

Given the "vast amount of sensitive information that can be mined from a person's DNA," *United States v. Amerson*, 483 F.3d 73, 85 (2d Cir. 2007), courts have held the extraction of an individual's DNA sample and "the creation of his DNA profile constitute[] a search for Fourth Amendment purposes." *United States v. Davis*, 690 F.3d 226, 246 (4th Cir. 2012). This is true whether the DNA is obtained directly from a person's body, or from an item they have had contact with. *Id.* at 246.

Much like "chemical analysis" of blood and urine samples, sequencing DNA samples "can reveal a host of private medical facts about [an individual]." *Skinner v. Ry. Labor Execs.' Ass'n*, 489 U.S. 602, 617 (1989). "[I]t goes without saying that the most basic violation possible involves . . . the non-consensual retrieval of previously unrevealed medical information that may be unknown

even to [the tested individuals]." *Norman-Bloodsaw v. Lawrence Berkeley Lab.*, 135 F.3d 1260, 1269 (9th Cir. 1998). As with a person's comprehensive location information, the "familial . . . and sexual associations" that can be revealed through DNA offer the government "an intimate window into a person's life." *Carpenter v. United States*, 138 S. Ct. 2206, 2217 (2018). Accordingly, courts have repeatedly recognized people's "very strong privacy interests" in that information. *Amerson*, 483 F.3d at 85; *see also, e.g.*, *Maryland v. King*, 569 U.S. 435, 481 (2013) (Scalia, J., dissenting) (noting the "vast (and scary) scope" of DNA collection); *State v. Medina*, 102 A.3d 661, 691 (Vt. 2014) (DNA "provide[s] a massive amount of unique, private information about a person that goes beyond identification of that person"); *People v. Buza*, 413 P.3d 1132, 1152 (Cal. 2018) (court was "mindful of the heightened privacy interests in the sensitive information that can be extracted from a person's DNA").

The U.S. Supreme Court's decision in *Maryland v. King* is not to the contrary. *King* acknowledged that collecting DNA from a person is a search, and then held that the particular program at issue—testing felony arrestees' DNA for identification purposes—was reasonable under the Fourth Amendment.[18] 569 U.S. at 446, 465–66. *King* addressed only the diminished

[18] Unlike the Maryland statute in *King*, under Iowa law only people convicted of serious offenses, not arrestees, are subject to mandatory DNA collection. Iowa Code § 81.2 (2021).

privacy interests of people who have been arrested, and the heightened government interests in searches designed to identify and process arrestees. That situation is quite distinct from the government conduct at issue here.

In narrow circumstances, "special needs, beyond the normal need for law enforcement," can justify warrantless searches under the Fourth Amendment. *Chandler v. Miller*, 520 U.S. 305, 313 (1997) (quotation marks and citation omitted). Accordingly, *King* permitted limited use of DNA testing, *post-arrest*, to serve "the need for law enforcement officers in a safe and accurate way to process and identify the persons and possessions they must take into custody." *King*, 569 U.S. at 449. *King* emphasized that the government's interest in identification is connected to the "routine administrative procedure[s] at a police station house incident to booking and jailing the suspect." *Id.* (quoting *Illinois v. Lafayette*, 462 U.S. 640, 643 (1983) (quotation marks omitted)).

In contrast, the DNA evidence here was obtained as part of the normal law enforcement process of gathering evidence to investigate crime, which is decidedly *not* a "special need" allowing law enforcement to escape the Fourth Amendment's warrant requirement. *Ferguson v. City of Charleston*, 532 U.S. 67, 79 (2001). In addition, none of the Court's justifications for recognizing a diminished privacy interest in *King* apply here. *King* dealt with the privacy interests of people who have been arrested and charged with a crime. 569 U.S. at 443, 462. In contrast, here, police gathered DNA evidence from a person

outside the custody or control of the state, who, as such, possessed the full measure of Fourth Amendment rights. *Davis*, 690 F.3d at 245 (when it comes to DNA searches, "a court's constitutional analysis may differ depending on whether the person is an arrestee or a 'free person'"). *See Griffin v. Wisconsin*, 483 U.S. 868, 874 (1987) (noting "the absolute liberty to which every [free] citizen is entitled").

King also relied heavily on the Court's understanding of the relatively limited DNA analysis involved there, which entailed processing only "13 CODIS loci" for identification purposes, which were understood to "come from noncoding parts of the DNA that do not reveal the genetic traits of the arrestee." 569 U.S. at 451, 464. Since *King*, however, CODIS testing has expanded to 20 loci, and experts have discovered that these allegedly "non-coding" parts of our DNA actually do provide genetic information beyond just identity. *See* Part I.A; *see also, e.g.*, Andrea Roth, *"Spit and Acquit": Prosecutors as Surveillance Entrepreneurs*, 107 Cal. L. Rev. 405, 414 (2019). As the Supreme Court itself recognized in *King*, these technological advances "present additional privacy concerns," *King*, 569 U.S. at 465, and therefore "a new Fourth Amendment analysis will be required." *Buza*, 413 P.3d at 1152 (citing *King*). As the Supreme Court has repeatedly explained, "the rule the Court adopts 'must take account of more sophisticated systems that are already in use or in development.'" *Carpenter*, 138 S. Ct. at 2218 (quoting *Kyllo v. United States*, 533

U.S. 27, 36 (2001)). Scientific advances mean that the list of private facts about a person that can be deduced from their DNA is ever-growing.

To the extent the government may argue that it only intended to *identify* Mr. Burns through collection and sequencing of his DNA, and not to learn other private facts about him, that is irrelevant for Fourth Amendment purposes. Irrespective of how it intended to use it, the State here had access to *all* of Mr. Burns's genetic information, which could be used now or anytime in the future. As the U.S. Supreme Court has made clear in several cases decided after *King*, the Fourth Amendment is concerned with the *entirety* of the private information revealed to police through a search—not just the pieces of information the government ultimately considers useful.

For example, in *Birchfield v. North Dakota*, the U.S. Supreme Court evaluated the Fourth Amendment implications of seizing the entirety of a driver's blood sample during blood alcohol testing. The Court recognized that a blood test "places in the hands of law enforcement authorities a sample that can be preserved and from which it is possible to extract information beyond" what the government claims to seek. 136 S. Ct. 2160, 2178 (2016). Thus, even if the law enforcement agency is precluded from testing the blood for any other purpose than to measure alcohol content, the potential of such testing remains and implicates broader privacy interests. *See id.* So, too, with DNA.

Similarly, in *Carpenter v. United States*, the Supreme Court looked to the full scope of the location data the government collected on the defendant (127 days) rather than the small portion of that data (16 location points from a few scattered days) that the government relied on to support its theory of the case at trial. In explaining why Mr. Carpenter had a reasonable expectation of privacy in his location information, the Court focused on the myriad "privacies of life" that *could be* revealed by the entirety of those 127 days of data. *Carpenter*, 138 S. Ct. at 2212, 2217.

This same principle applies to government collection of DNA. Whenever law enforcement collects an individual's DNA, it gains access to the entirety of that person's genetic blueprint. That violates reasonable expectations of privacy under the Fourth Amendment.

B. The warrantless extraction and indefinite retention of Mr. Burns's DNA is an unconstitutional seizure.

The State's warrantless extraction and sequencing of Mr. Burns's DNA interfered with his possessory rights in his DNA and thus constituted an unreasonable seizure prohibited by the Fourth Amendment. "A seizure deprives [an] individual of dominion over his or her person or property." *Horton v. California*, 496 U.S. 128, 133 (1990); *see also United States v. Jacobsen*, 466 U.S. 109, 113 (1984) ("seizure" occurs when there is "some meaningful interference with an individual's possessory interests in that property").

Government interference with an individual's property rights is a seizure, even if the owner's privacy was not violated. *See Soldal v. Cook Cty.*, 506 U.S. 56, 62–64, 68 (1992).

One of the most crucial property rights is the right to exclude others. *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 435 (1982). This right may be violated even if the owner retains an exact copy of the property seized if it means the owner is unable to control subsequent uses of their information. *See, e.g.*, *United States v. Jefferson*, 571 F. Supp. 2d 696, 703 (E.D. Va. 2008) (copying contents of a person's documents interferes with the person's sole possession of the information contained in those documents); *Caldarola v. Cty. of Westchester*, 343 F.3d 570, 574 (2d Cir. 2003) ("Fourth Amendment seizure has long encompassed the seizure of intangibles [such as a person's image] as well as tangibles."); Orin S. Kerr, *Fourth Amendment Seizures of Computer Data*, 119 Yale L.J. 700, 711 (2010) ("[w]hen the government makes an electronic copy of data, it obtains possession of the data that it can preserve for future use").

The State's extraction and sequencing of Mr. Burns's DNA significantly interferes with his ability to control and exclude others from accessing his private genetic information. Once the State isolates a DNA sample, *all* the data in that sample is in the government's possession and outside the individual's control. This seizure is not momentary; in most cases, the state retains both the

DNA sample and the DNA profile indefinitely. DNA profiles are entered into state and federal databases accessible to all manner of law enforcement agencies and officials, making those profiles subject to search again and again in future investigations.

Moreover, Iowa law reflects a careful balancing of people's strong interest in maintaining control of their genetic information, and the State's interest in identifying people found guilty of crimes. Unlike in many states, in Iowa DNA is not taken from arrestees, but only from individuals convicted (or adjudicated not guilty by reason of insanity) of felonies, aggravated misdemeanors, and certain sexual offenses. Iowa Code § 81.2 (2021); *see also id.* § 81.9 (allowing persons whose convictions are reversed to expunge their DNA sample). Iowa law also prohibits any person from "obtain[ing] genetic information or samples for genetic testing from an individual without first obtaining informed and written consent from the individual." *Id.* § 729.6(3)(a). These legal protections inform Iowans' expectation that copies of their DNA will not be seized and sequenced without their knowledge or consent. *See Carpenter*, 138 S. Ct. at 2270 (Gorsuch, J., dissenting) (explaining that "positive law may help provide detailed guidance on evolving technologies" under the Fourth Amendment).

And, unlike DNA samples collected upon conviction, which are required to be placed in the state's DNA database and subject to use

constraints, Iowa law places no explicit limits on what the State may do with a surreptitiously collected DNA sample,[19] so nothing prevents the state from testing and extracting data from the sample again and using it for other purposes. *See Birchfield*, 136 S. Ct. at 2178.

Because the warrantless extraction and sequencing of Mr. Burns's DNA from his drinking straw meaningfully interferes with his right to exclude others from his private genetic data, the government's actions constitute a seizure under the Fourth Amendment.

III. The Abandonment Doctrine Does Not Apply to Unavoidably Shed DNA, so Police Must Get a Warrant before Extracting and Analyzing Such DNA.

To protect against the "serious and recurring threat to the privacy of countless individuals" posed by unconstrained police incursions into Americans' private affairs, warrantless searches "are *per se* unreasonable under the Fourth Amendment—subject only to a few specifically established and well-delineated exceptions." *Arizona v. Gant*, 556 U.S. 332, 338, 345 (2009); *see also State v. Ochoa*, 792 N.W.2d 260 (Iowa 2010) (warrant presumption even stronger under article I, section 8 of the state constitution). No exception applies here.

[19] *See* Iowa Code § 81.3 (2021) (distinguishing between DNA samples that "shall" and "may" be submitted to the state DNA database and DNA data bank).

The district court concluded that because there is no reasonable expectation of privacy in the *items* a person abandons in trash left out for collection, government agents should be free to extract, sequence, and use the *genetic material* that individuals have inadvertently deposited on those items, all without any constraint under the Fourth Amendment. *See* Ruling on Mot. to Suppress Evid. p. 8. But DNA is not analogous to curbside trash, and cases finding diminished Fourth Amendment interests in abandoned property simply do not control when it comes to our private genetic information. While it may be permissible for police to seize a knowingly abandoned physical item without a warrant, extracting and sequencing a DNA sample found on that item without a warrant violates the Fourth Amendment.

A. The abandonment doctrine depends on the knowing, voluntary exposure of private information to the public.

The U.S. Supreme Court has held that people have no reasonable expectation of privacy in garbage left out for collection because they have knowingly exposed their trash to any member of the public. *California v. Greenwood*, 486 U.S. 35, 40 (1988). The Court has similarly held that people have no Fourth Amendment privacy or property interest in items they knowingly abandon. *See Abel v. United States*, 362 U.S. 217, 239 (1960) (no warrant required for police to seize items a suspect left behind in a hotel room after checking out); *Hester v. United States*, 265 U.S. 57, 58 (1924) (no Fourth Amendment

seizure when police obtain jug containing moonshine whisky after suspect abandoned the jug). The principle from these cases is often referred to as the "abandonment doctrine." But while the abandonment doctrine cases may permit police to seize and visually examine an item discarded by a suspect, they do not permit police to search the DNA unavoidably deposited on that item without a warrant.

The U.S. Supreme Court has repeatedly cautioned that "[a]s technology has enhanced the Government's capacity to encroach upon areas normally guarded from inquisitive eyes, [courts must seek] to 'assure [ ] preservation of that degree of privacy against government that existed when the Fourth Amendment was adopted.'" *Carpenter*, 138 S. Ct. at 2214 (quoting *Kyllo,* 533 U.S. at 34) (last alteration in original). Courts must therefore avoid "mechanically applying" older doctrines to new types of searches made possible by modern technologies, which can reveal myriad "privacies of life" in ways that are "remarkably easy, cheap, and efficient compared to traditional investigative tools." *Id.* at 2217–19; *accord Riley*, 573 U.S. at 393. That is why the Supreme Court has declined to extend the search-incident-to-arrest exception to permit warrantless searches of cell phones, *Riley*, 573 U.S. at 386; the third-party doctrine to permit warrantless searches of cell phone location information held by a cellular service provider, *Carpenter*, 138 S. Ct. at 2217; and the public-exposure doctrine to permit warrantless surveillance of a home using

thermal imaging technology, *Kyllo*, 533 U.S. at 34–36, or pervasive tracking of a person's movements on public streets using a GPS device, *United States v. Jones*, 565 U.S. 400, 415–18 (2012) (Sotomayor, J., concurring); *id.* at 429–31 (Alito, J., concurring in judgment).

Likewise here, applying the abandonment doctrine to permit warrantless extraction and sequencing of DNA that people unavoidably leave behind as they move through the world would "untether the rule from the justifications underlying" the doctrine. *Riley*, 573 U.S. at 386 (quoting *Gant*, 556 U.S. at 343). The key rationale of the abandonment doctrine is that people voluntarily expose an item to public view by abandoning it. *See Greenwood*, 486 U.S. at 40–41. But that rationale fails when it comes to DNA, for two reasons. First, unlike physical items, the contents of DNA are never actually visible to the public, and sophisticated technology is required to extract genetic information from a sample. It is simply not reasonably foreseeable that any member of the public will use a person's drinking straw, coffee cup, or used tissue to obtain a sample of their DNA, and send that sample to a lab to be sequenced. Second, that lack of voluntariness matters all the more in light of the extraordinary privacy interest in our DNA, which is categorically greater than the privacy interest in the physical items on which it happens to be deposited. (*See* 1/24/20 Tr. p. 141, lines 3–4 (defendant testifying that "I didn't realize there was so much information contained in that material [the drinking straw].")).

B. Unavoidably shed DNA is not voluntarily abandoned.

The DNA we unavoidably shed on items we later discard is not "voluntarily" shared in any meaningful sense. Application of the abandoned property doctrine hinges on whether an individual "voluntarily abandons" the thing in question. *State v. Bumpus*, 459 N.W.2d 619, 625 (Iowa 1990). Voluntariness is a question of intent, which "may be inferred from words, acts, and other objective facts." *Id.* Thus, in *Abel*, the Supreme Court emphasized that warrantless seizure of the items in question was permitted only because the suspect "*chose* to leave some things behind in his [hotel] room, which he *voluntarily* relinquished." 362 U.S. at 239 (emphases added).

As the U.S. Supreme Court recently made clear in *Carpenter*, in the face of advancing police technological capabilities, voluntariness under the Fourth Amendment cannot be assumed. Like the abandonment doctrine, the third-party doctrine applies to information that is "voluntarily conveyed." *United States v. Miller*, 425 U.S. 435, 442 (1976). But as the Court explained in *Carpenter*, the third-party doctrine does not extend to cell phone location information because it "is not truly 'shared' as one normally understands the term." 138 S. Ct. at 2220. That is because cell phones "are 'such a pervasive and insistent part of daily life' that carrying one is indispensable to participation in modern society." *Id.* (quoting *Riley*, 573 U.S. at 385). And once a person carries a cell phone, location information is logged "by dint of its operation, without any

affirmative act on the part of the user . . . . Apart from disconnecting the phone from the network, there is no way to avoid leaving behind a trail of location data." *Id.*

Similarly, because we shed DNA constantly, *see* Part I.B, "[t]here is no way to avoid leaving behind a trail" of DNA, and "[a]s a result, in no meaningful sense does the [individual] voluntarily 'assume[] the risk' of turning over a comprehensive dossier" of genetic information. *Carpenter*, 138 S. Ct. at 2220 (last alteration in original).[20] A person attempting to avoid depositing DNA in their wake would have to relinquish the ability to participate in necessary human activities, to leave their home, and even to touch items that might then end up in their recycling or trash.

Thus, the question is not whether Mr. Burns could have or should have taken the straw with him rather than leaving it behind at his table. *Contra* Ruling on Mot. to Suppress Evid. p. 9. Rather, the question is whether society expects him—and any Iowan—to shoulder the impossible burden of ensuring that no

[20] The Court of Appeals' unpublished decision in *State v. Christian*, 723 N.W.2d 453 (Iowa Ct. App. 2006) (unpublished table opinion), addressing a warrantless search of DNA unavoidably deposited by a suspect on a fork and a water bottle during a law enforcement ruse operation, should not be relied on as persuasive authority because it predates *Carpenter* and the Supreme Court's other recent Fourth Amendment cases. The same is true of *Commonwealth v. Cabral*, 866 N.E.2d 429, 433 (Mass. App. Ct. 2007), cited by the district court. *See* Ruling on Mot. to Suppress Evid. p. 8.

microscopic bit of biological material is ever left behind as they go about their daily lives. The implications of adopting the government's rule would be staggering. It would place the burden on diners to demand access to the restaurant kitchen to wash and sterilize their cutlery and glassware before paying the bill. It would force us to scrub the salt shaker on the table, the pen used to sign a credit card slip, and every other item we touch with antiseptic wipes. *See* Part I.B (discussing transference of DNA-containing cells in the course of touching objects). It would require each of us to carry a cordless vacuum cleaner to hoover up any skin cells or hairs that our bodies shed in a restaurant booth or barber's chair. It would force us not only to collect and transport every item we touch during a day away from home, but to then incinerate all of those items *and* all of our residential trash rather than putting it out for collection. *But see, e.g.*, Iowa Dep't of Public Safety, *Proclamation on Open Burning Prohibited* (Oct. 19, 2020).[21] And it would force people to wear full-body protective suits, hair coverings, gloves, and respirators to avoid leaving behind even a trace of their DNA. *See* Part I.B. Society simply does not expect people to take such measures to avoid a government agent seizing and searching their private genetic information.

[21] https://web.archive.org/web/20210123053825/https://dps.iowa.gov/sites/default/files/state-fire-marshal/burn-bans/Polk-proc-10172020.pdf.

The U.S. Supreme Court has repeatedly made clear that the Fourth Amendment does not require people to take extraordinary measures to protect themselves from invasive modern surveillance techniques. Thus, in *Kyllo*, the Court rejected the dissent's suggestion that people should be required to add extra insulation to their homes to avoid thermal-imaging surveillance. *Compare Kyllo*, 533 U.S. at 29–40, w*ith id.* at 45 (Stevens, J., dissenting). And in *Carpenter*, the Court made clear that people need not "disconnect[] the[ir] phone from the network . . . to avoid leaving behind a trail of location data." 138 S. Ct. at 2220. Other courts have applied this principle in a variety of contexts. *E.g. Commonwealth v. Mora*, 150 N.E.3d 297, 306 (Mass. 2020) (people not required to erect high walls around their homes to avoid warrantless long-term video surveillance by police cameras surreptitiously installed on utility poles); *United States v. Cotterman*, 709 F.3d 952, 965 (9th Cir. 2013) (en banc) (people not required to delete files from their electronic devices before traveling to avoid suspicionless searches by U.S. border agents of their private digital information). Accepting the government's position would require people to take impractical and extraordinary steps to avoid searches and seizures of their genetic information. The Fourth Amendment requires no such thing.

C. The privacy interest in DNA is categorically greater than the privacy interest in physical items on which it is deposited.

Moreover, the privacy interest in unavoidably shed DNA is of a different magnitude than the interest in physical items abandoned in public or placed in the trash. As described above, Part I.A, DNA reveals one's propensity for medical conditions, from breast cancer to Huntington's disease; biological familial relationships, including unexpected or unknown parentage; and ancestry. As the Supreme Court has explained, analysis of bodily fluids can reveal "a host of private medical facts about [a person]" and thus implicates strong privacy interests. *Skinner*, 489 U.S. at 617.

Of course, examining physical items a person knowingly abandons can sometimes reveal private information. But whatever personal details happen to be discoverable from an abandoned item, the privacy interest in DNA is categorically greater because it *always* contains and reveals the full scope of a person's medical, familial, and other genetic information. Comparing the seizure of a drinking straw—or any other abandoned item—to the search of genetic information deposited on it is "like saying a ride on horseback is materially indistinguishable from a flight to the moon." *Riley*, 573 U.S. at 393. Our genetic information "implicate[s] privacy concerns far beyond those implicated by" the visual inspection of a physical item on which it might be deposited. *Id.*

As a result, the sequencing of DNA from a sample deposited on an abandoned item is a separate event under the Fourth Amendment from the seizure or visual inspection of the item itself. In a variety of contexts, the government's search of private information using modern technological capabilities is subject to greater constraints under the Fourth Amendment than the initial seizure of the information. That is why in *Riley*, for example, the Supreme Court allowed police to seize a person's cell phone incident to arrest, but prohibited police from searching the information stored in the phone without a warrant. *Id.* at 403. Likewise, as a matter of administrative convenience, courts routinely permit police to seize entire hard drives pursuant to a warrant permitting search for only particular information, but require police to obtain a second warrant before searching for digital files outside the scope of the initial warrant. *E.g.*, *People v. Hughes*, __ N.W.2d __, No. 158652, 2020 WL 8022850 (Mich. Dec. 28, 2020). *See also United States v. Hasbajrami*, 945 F.3d 641, 670 (2d Cir. 2019) ("querying that stored data does have important Fourth Amendment implications, and those implications counsel in favor of considering querying a separate Fourth Amendment event"). And of course, as the Supreme Court has explained, the "collection and subsequent analysis of . . . biological samples must be deemed [separate] Fourth Amendment searches." *Skinner*, 489 U.S. at 618.

Accordingly, although seizure of a physical item containing a person's DNA may fall within an exception to the warrant requirement, testing that DNA to reveal genetic information does not. *Davis*, 690 F.3d at 226. A warrant is required.

IV. Warrantless Searches of Unavoidably Shed DNA Violate Article I, Section 8 of the State Constitution.

This Court has "jealously guard[ed its] right to construe a provision of our state constitution differently than its federal counterpart." *State v. Jackson*, 878 N.W. 2d 422, 442 (Iowa 2016). "Even 'in . . . cases in which no substantive distinction [appears] between state and federal constitutional provisions, [this Court] reserve[s] the right to apply the principles differently under the state constitution compared to its federal counterpart.'" *State v. Gaskins*, 866 N.W.2d 1, 6 (Iowa 2015) (first two alterations in original) (quoting *King v. State*, 797 N.W.2d 565, 571 (Iowa 2011)). Thus, although the Fourth Amendment and article I, section 8 of the state constitution are similarly worded, this Court has "engage[d] in independent analysis of the content of our state search and seizure provisions." *Ochoa*, 792 N.W.2d at 267.

In a range of circumstances, that independent analysis has resulted in greater protection under article I, section 8 than under the Fourth Amendment. This Court has, for example, declined to import the good-faith exception to the exclusionary rule adopted by the U.S. Supreme Court under the Fourth

Amendment in *United States v. Leon*, 468 U.S. 897, 922 (1984). *State v. Cline*, 617 N.W.2d 277, 293 (Iowa 2000). It has strictly applied the standards for vehicle stops under article I, section 8, regardless of how they might be applied under the Fourth Amendment, *State v. Tague*, 676 N.W.2d 197, 205–06 (Iowa 2004), and has limited "consent" searches during roadside stops more strictly than the U.S. Supreme Court has. *State v. Pals*, 805 N.W.2d 767, 783 (Iowa 2011). And it has adopted stricter protections against warrantless searches of parolees than those provided by the Fourth Amendment. *Ochoa*, 792 N.W.2d at 291–92 (rejecting Fourth Amendment rule announced in *Samson v. California,* 547 U.S. 843 (2006)).

However this Court rules on the Fourth Amendment question, it should hold that such a search of unavoidably shed DNA violates article I, section 8. Under this provision, abandonment requires an "intent . . . to rid [oneself]" of the thing in question and to "place [it] outside the realm of [one's] control"; in other words, a desire "no longer . . . to be associated with" it. *Bumpus*, 459 N.W.2d at 625. As explained in detail above, Parts I.B, III, people do not make a meaningful choice when they leave copies of their genetic material on items they touch. It would be nonsensical to assert that a person "no longer wanted to be associated with" their DNA when they have no awareness that it is being shed, much less the ability to avoid shedding it.

This Court has repeatedly explained that waivers of the protections of article I, section 8 must be strictly construed, and the intent to waive the right against warrantless search cannot simply be presumed. Even where a person gives express consent, this Court has held that a search violates article I, section 8 when "the surrounding conditions strongly point[] to involuntariness of the consent." *Pals*, 805 N.W.2d at 783. In *State v. Baldon*, for example, the Court invalidated a search carried out pursuant to a consent waiver in a parole agreement, reasoning that entry into the agreement to secure release from prison is inherently coercive, and so "consent under these circumstances is not real." 829 N.W. 2d 785, 802 (Iowa 2013). As the Court explained, "[w]e are duty bound to give the liberty in article I, section 8 of our constitution the integrity it deserves and demands, and we must not allow the government to avoid an important constitutional check on its power by using an unfair play on human nature." *Id.* The state's position here is equally untenable: the fiction that a person has voluntarily waived the protections of article I, section 8 by virtue of biological realities they cannot control is exactly the kind of "unfair play on human nature" this Court has foreclosed.

Moreover, this Court has recognized the unique nature of DNA, explaining that "DNA can be obtained from almost any of the cells of the body" and "do[es] not change during a person's lifetime." *State v. Brown,* 470 N.W. 2d 30 (Iowa 1991). Given the immutability of DNA and our inability to

control shedding it, people do not have the requisite intent to abandon their unavoidably shed DNA, and so cannot be said to have consented to its search by police.

Given the privacy and property interests described above, Part II, the warrantless search of unavoidably shed DNA is precisely "the kind of unrestrained discretion that is 'unreasonable' under article I, section 8. The scope of the asserted power is stunningly broad." *Ochoa*, 792 N.W.2d at 287. "Such unbridled discretion has been labeled as the 'evil' the Fourth Amendment, and by implication article I, section 8, was designed to avoid." *Id.* at 288. In light of the unavoidability of shedding DNA and the extraordinary privacy interest in our genetic information, the warrantless search of Mr. Burns's DNA violated article I, section 8. A warrant was required. *See id.* at 285 (explaining strong preference for warrants under article I, section 8).

CONCLUSION

For the foregoing reasons, *amici* respectfully urge the Court to hold that extraction and sequencing of a person's unavoidably shed DNA is a search and seizure under the Fourth Amendment and article I, section 8 of the Iowa Constitution, for which a warrant is required.

Dated: March 30, 2021

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[22] *Amici* thank ACLU Legal Fellow Shreya Tewari for her assistance in preparing this brief.

COST CERTIFICATE

I hereby certify that the cost of printing this brief was $0.00 and that that amount has been paid in full by the ACLU of Iowa.

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I hereby certify that on March 30, 2021, a copy of the foregoing was served on the following parties:

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